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THE BIBLE OF NATURE
and
THE BIBLE OF GRACE

The Bible of Nature

and

The Bible of Grace

By
JOSHUA H. MILLER, Ph.D.

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To My Wife,
Anna Levering Miller,
And to my Children,
Theodore Kenneth, and Adeline Elizabeth,
This Book I Lovingly Dedicate.
J. H. Miller.

"I have learned to look on Nature, not as in the hour
Of thoughtless youth; but hearing oftentimes
The sad, still voice of humanity,
Not harsh or grating, though of ample power
To chasten and subdue. And I have felt
A presence that disturbs me with the joy
Of elevated thoughts; a sense sublime
Of something far more deeply interfused.
Whose dwelling is in the lights of setting suns,
And the round oceans and the living air,
And the blue sky, and in the mind of man.
A motion and a spirit that impels
All thinking things; all objects of all thoughts,
And rolls through all things.

"Therefore am I still a lover of the meadows and the woods and mountains,
And this prayer I make,
Knowing that Nature never did betray
The heart that loved her. 'Tis her privilege
Through, all the years of this one life to lead
From joy to joy; for she can so inform
The mind that is within us—so impress
With quietness and beauty, and so feed
With lofty thoughts,—that neither evil tongues,
Rash judgments, nor the sneers of evil men,
Nor greetings, where no kindness is,
Nor all the dreary intercourse of daily life,
Shall e'er prevail against us, or disturb
Our cheerful faith."

William Wordsworth.

PREFACE

This book does not pretend to exhaust the subject; on the contrary, I have sought to be as brief as possible and yet try to make clear to the average reader that the Bible of Nature and the Bible of Grace must have a common author, as is manifest in their harmony.

There seems much need in our day to reaffirm that since ever the world began, and so long as heaven and earth shall last, there never has been, and never will be, a fact to prove that there is no God, or that the soul is not immortal, or that Jesus Christ did not come to earth as God-man to die for our sins; and there is no fact which proves that there is no resurrection of the dead, and that the sick cannot be healed by prayer, for the reason that facts have no negative proof-power. Facts by themselves are, like the unpointed Hebrew consonant writing, hollow, colorless forms, without any meaning. They only become alive with color and sound by the addition of the vowels.

Because to so many the Book of Nature is like the unpointed Hebrew consonant writing, for them I want to add the vowels of the

Book of Grace and thus give color and life and meaning to all truth. I want to express my sincere conviction in a living and personal God who is manifest alike both in natural and revealed theology. Their history, laws, poetry, prophecy and Gospel tell that the God of Nature is the God of the Bible, and vice versa.

I wish to show to my readers that the conception of the universe which is most logical, most harmonious, and most in accordance with facts, is the conception of the Christian —it is more scientific than all systems, materialistic and atheistic, which often confound fact with explanation.

I wish also to express my sincere regard for the facts which the truly great men of the past have given us from their study of nature's book, and encourage every man to ponder the same; for whoever says he lost God through studying Nature's Book never really possessed Him.

JOSHUA H. MILLER.

Irwin, Pa.

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CHAPTER I

Two Books

There are two books that all of us should read, and we should read them with diligence and care; for they contain all truth man may know from the animalcule in the sod to the seraph on the throne. These two books are the Bible of Nature and the Bible of God's word. They have a common author, whose character is written on every page. To observe their common authorship is not optional with us as rational beings, but obligatory. We are commanded to "Consider the lilies of the field how they grow." We are told to "Behold the fowls of the air." We are thereby encouraged, yea, admonished to study the sciences of Botany and Ornithology. The great Teacher, as was His custom, hereby intended to declare a universal principle. He intended to say to you and me that it is well for us not only to read the chapter on Botany and the chapter on Ornithology but all other chapters contained in the great Book of Nature; that Christians everywhere—whether they are in the university or on the farm—should feel it an imperative duty, or, should I say, a privilege, to acquire a knowledge of those wonderful laws which

govern the universe, and to study as well the composition of a minute grain of sand as that of a magnificent sun; the structure of a tiny flower or of a banyan tree; the life and habits of an amoeba, or those of a saurian. Look where you will in nature and you will find it pregnant with thought—thoughts for a botanical library—thoughts for an embryological library—thoughts for a paleontological library; and thus we might continue to multiply.

Men have busied themselves with the text of Nature's sacred scriptures, and have given us a large part of the libraries of the world. But if they had translated into books all the thoughts that nature contains, hidden and revealed, "I suppose that even the world itself could not contain the books that should be written."

The ancients did not realize the unity of authorship. Their science consisted of isolated facts and discordant laws. Was there any wonder? They believed in many gods. Modern science has come to realize unity of thought—a harmonius oneness—one God as the author of life. (And all stability of character rests on the contemplation of changeless unity.)

Twenty-six letters of the alphabet spell out all the books that are written in the English language. Compare this with the 25,000 characters of the Chinese and you

will not wonder at the advancement of the Aryan characters as compared with that of the Turanian.

If you are acquainted with the permutations of numbers, it is not strange, after all, that by means of some eighty elements you may be able to spell the myriad forms of plant and animal life. For example, consider the numbers as elements and observe the combinations in the accompanying diagram.

1	2	3	1	3	2
2	3	2	3	1	1
3	1	1	2	2	3

Thus you observe that six columns of different combinations can be made with three figures. The possible permutations of any number of things or elements may be easily ascertained by multiplying consecutively the figures from one upwards, thus—1 x 2 x 3—6, as in the diagram. The addition of only one element or number greatly increases the number of possible variations in the order; for, while three elements could be placed in six different ways, seven elements could be arranged in 5040 orders; 1x2x3x4 x5x6x7—5040.

Thus the Yale lock makers, by such a simple device as a screw and fifteen bits, could so change their combinations as to produce 1,307,674,368,000 varieties of locks;

more than enough to supply every human being the world over with a different key.

Perhaps this simple illustration will help us to understand the possibilities for the elements to unite in such a way as to produce the forms "ad infinitum" all around us. What a volume of thought this earth contains if only we can interpret the combinations of letters! On nature's first page we meet with a monosyllabic word—yet it is a word with a fixed meaning. The arrangement of the letters is a fact to be explained. We see this word often occurring in nature; and wherever it occurs it is always spelled in the same way. Its letters —chromosomes in the cell—(that which causes the cell to bring forth according to its kind) are always the same in each specific word of life. In the opening sentences of the Bible of Nature we read other words, formed of similar letters, but longer and more complex; they also are always spelled correctly with their definite number of letters and syllables, of chromosomes and cells.

We turn the pages and find that these words of nature are not single and detached. Behold! they arrange themselves in certain relations to each other for which they seem to be intended. When we examine more closely, we find that they are mutually adapted; and thus arranged, a new order

appears—a sentence is composed. And then naturally, sentence follows sentence co-ordinate or complex. The separate sentences fall into groups; we mark the paragraphs on nature's pages; one leads up to the next; each part takes meaning from that which precedes, and enlarges the idea on the next page. Like the Bible of God's Word, so with the Bible of Nature, we can understand no sentence or paragraph aright if we read it out of its connection and relation. For these larger paragraphs and chapters belong to some great argument running through all the words and sentences, evidently looking beyond our present understanding toward some vast system of thought. St. Augustine calls the creation the poem of Divine ideas. We have not yet learned all of that poem. But though "we know only in part," yet we know. All the verses and paragraphs we have learned have intelligence and tell of an author. And the meanings we have spelled out are enough to show clearly that they belong together, fashioned by one author to constitute the Bible of Nature.

Macfie says: "It is very strange that a little association of carbon, oxygen and nitrogen should have the power of adding to their number and it is stranger still that the addition should take such shape, and produce such a mechanism as a multicel-

lular organism. If a brick were to grow into a pile of bricks and if the bricks were to arrange themselves into the form of a Cathedral, what a miracle it would seem; yet every day single cells grow into heaps of cells and the heaps of cells arrange themselves into trees, and flowers, and birds, and beasts and men, and no one seems particularly surprised."

Only twenty-six letters of the alphabet were required to convey to us all the thoughts in the Bible of God's Word. Letters were so arranged as to constitute a book—the Bible. And the harmony and intimate connection subsisting between all the parts of scripture (notwithstanding the fact that the various parts were penned by different persons and at very different times) tell of an editor-in-chief—of one whose mind and will and spirit should be revealed.

Think! How often does it happen that contemporary writers contradict each other in relating a fact which has happened in their own time and within the sphere of their own knowledge! But in the Scriptures there is neither dissent nor contradiction. The Scriptures do not consist of a book compiled by many hands acting in the same age in collusion or collaboration. Most of the writers lived at very different times, and in distant places, through the long space

of about sixteen hundred years so that no collusion could be possible; and yet their narrations agree with and mutually support each other.

The writers, men of different education, faculties and occupations—prophets, evangelists, apostles—notwithstanding the diversity of time and place, the variety of their subject matter—consisting of mysteries of providence, as well as of mysteries of faith, all are uniformly in accord in carrying out one consistent plan. All constantly propose the same invariable truth, flowing from the same fountain through different channels. Can you find one writer controverting the statements or opinions of his predecessor? One historian who disputes any fact which another has stated? Is there in the prophets any discrepancy in doctrines, precepts or predictions? However they may vary in style or in manner of illustration the sentiment, the doctrine and the morality are always the same. In their predictions some exceed others in particularity and clearness, but there is no contradiction.

The same is true of the New Testament. The doctrines of Christianity harmonize. One writer may enlarge upon and explain what another has said—he may add to his account and carry it further but he never contradicts him. Whence then

arises this harmony of Scripture? Had the writers been under no peculiar divine influence they would have reasoned and speculated like others, and their writings would have opposed each other. But if they were inspired—if they all wrote and spoke the will and counsel of one another, then is this harmony accounted for.

And as there is unity of thought and harmony in the Bible of God's Word and unity of thought and harmony in the Bible of Nature, so they in turn reveal such harmony as to indicate a common authorship. These two books, like the two cherubs (Exod. 25:20) look steadfastly towards each other, and towards the mercy-seat which they encompass.

The Eternal Spirit expresses his archetypal thought in the physical universe. This is the primitive medium of revelation, the first word of God. The Book of nature is the primer, in which he sets his children first to spell out his name and to read what he is. Therefore in all languages the names of spiritual things continue to indicate the primitive medium of revelation.

But if Nature is God's first word it is not His only word. If it is the primer for His children, it is not the means or medium through which His highest thoughts are expressed to the full-grown man. The character of the message must dictate the

nature of the medium through which it shall be communicated. If nature is God's first word it is not His only word. If it is the primer for His children, then surely there is another book for those in the full stature of manhood. This medium of expression is a universal principle, full of interest. In literature we call it "style." The common thought must be clothed in very simple, familiar and homely words. The grander and loftier conception creates for itself a worthy vesture and moves in the glory of some picturesque and stately phrase. Some things can be properly told only in prose, others only in verse, and finally you pass beyond what language has the power to express at all.

What is the meaning of art and of music? There is that which the instrument can tell which, after the instrument has ceased, you know has been said, of which you are sure that while you sat and listened it was becoming your possession, yet which you are powerless to give an account of in any way adequate or fit.

Other messages come to you through the marble or canvas, and others still through nature which is God's book of Art—His great orchestral multitudinous unity of voices which speak to ears attuned to listen, things which they alone can hear. And within the region of each special art there are

adaptations. The drum and bugle may give out the wild and stirring summons to the battle. The stately organ, the subtle violin or harp, must lend their voices for the richer and more pathetic stories which the soul can hear. There is that which you must carve in ivory and that which you must hew in granite. Wax cannot bring the revelation which can shine forth from marble. The true artist is he in whom the feeling of the fitness of message and medium for one another is perfect. For the message is dumb without its true medium of expression, and the medium without its worthy message is insignificant and weak. In these two truths lie the secret of the failure of all that tries to be art and is not, and the secret of the success of all that is finally and truly art.

We can well see where such a principle will make its highest exhibition, for the highest and finest element in the world's life is human nature. Therefore it will be through the medium of human natures that the loftiest and completest revelations will be given. This the ancient Greeks believed. That which could not be spoken in words, nor breathed through music, nor intimated in the subtle harmonies of nature, nor painted on canvas, nor cut in brass will be told where only it can be told, in man. A human life will be God's voice to utter His highest,

His divinest truth. This is what made the Incarnation a living epistle. "The Heavens declare the glory of God," and "God, who, at sundry times and in divers manners, spake in the time past unto the fathers by the prophets, hath in these last days spoken unto us by His Son." The highest humanity is required to bring the highest message of Divinity. The tidings which the stars and trees bring are good and inspiring, but they are not the only truths. There are other truths concerning a loving God they cannot tell.

All science rests on the assumption that nature is intelligible. It finds all things in nature to be symbols and it interprets them. It deciphers nature and learns the thought which it expresses precisely as Champollion deciphered the hieroglyphics on the obelisks of Egypt. If those strange letters on the monuments had not first been symbols of intelligent thought, no intelligence could have found intelligence in them.

"When the sculptor develops his Apollo or his Venus from the quarried marble, it is his own creation and has his image stamped on it; but the truth which the man of science extracts has an absolute character of its own, which no power of genius can transform, and which is neither attributable to accident nor born of human parentage. It pervades the meanest chip

of stone which the artist rejects." (Prof. Benjamin Pierce.) If you should ask what kind of ideas are in nature I would answer a whole Bible of ideas; for if you know nature at all you are aware of the fact that there is much that is history, much that is law, much that is poetry, much that is Gospel and much that is prophecy. Are the scientists, then, also among the prophets? Comte goes so far as to insist that the power of foreseeing and foretelling phenomena is characteristic of science and that all knowledge which does not reach this power is unworthy of the name of science. We realize that Physical science has attained this power in many cases. It knows so exactly the laws under which the forces of nature are ordered that it can foretell events ages distant in the future to the fraction of a second.

The scientist who discovers or invents is a prophet. The mind forms its hypothesis of what must be; and then goes out into nature and finds that it is so. The genius of the discoverer creates a prophetic picture and says: Nature must be so and so; then he goes out into nature and finds his conception there already realized in nature ages before he had thought of it; and yet a pure intellectual conception. This is almost the universal history of discovery; it is an intellectual creation, a prophetic idea,

afterwards found expressed and realized in the material creation. And frequently the prophecy is announced many years before it is actually discovered and verified in nature. Invention is also prophecy. The inventor creates his machine in thought before he realizes it in actual construction; and the steel and brass and wood, the water, the fire, the electricity, created as expressions of intellectual thought, yield readily to the thought of the inventor, obey the laws which guided him in creating his idea and steadily do the work which he directs. And when he investigates nature he finds in it similar contrivances doing the same kind of work according to the same laws. And often it is the contrivance in nature which suggests the invention to man. The divine art in nature is the model for human art.

True, we do not always read aright. Theologians should recognize the truth that the discovery of facts may necessitate the correction of their opinions in order to adjust them to the newly discovered facts, laws or truths. If a person holds a theological doctrine which obliges him to object to vaccination or to lightning rods, as interfering with God's Providence, evidently he is required to change—not the text of Scripture, but the interpretation, the reading thereof.

Likewise many conflicting theories have

been advanced regarding the Bible of Nature. In the last century the French Scientific Association printed a list of eighty theories of geology that had been believed in and afterwards rejected. Lyell, the Scientist, announces fifty theories regarding nature that had been adopted and afterwards rejected. These theories do not militate against the Books. The texts remain unchanged and still contain their everlasting truths. And truth in one department of knowledge can never conflict with truth in another. Conflicting theories only say that men have not been reading the text aright. From the religious viewpoint the all-important thing for us to do is not to read theology into science or science into theology; but to read theology out of both alike, that is, out of the Bible of Nature and the Bible of God's Word.

That is what Sir Thomas Browne did as he tells us in his "Religio Medici." "Thus there are two books from which I collect my divinity; besides that written one of God, another of his servant nature, that universal and public manuscript that lies exposed unto the eyes of all, those that never saw Him in the one have discovered Him in the other; this was the scripture and theology of the heathens; the natural motion of the sun made them more admire Him than its supernatural station did the chil-

dren of Israel; the ordinary effects of nature wrought more admiration in them than in the other of his miracles. Surely the heathens knew better how to join and read these mystical letters than we Christians, who cast a more careless eye on these common hieroglyphics, and disdain to suck divinity from the flowers of nature."

"TIME"

I saw Time in his workshop carving faces;
Scattered around his tools lay, blunting griefs.
Sharp cares that cut out deeply in reliefs
Of light and shade; sorrows that smooth the traces
Of what were smiles. Nor yet without fresh graces
His handiwork, for ofttimes rough were ground
And polished, oft the pinched made smooth and round:
The calm look, too, the impetuous fire replaces.
Long time I stood and watched: with hideous grin
He took each heedless face between his knees,
And graved and scarred and bleached with boiling tears.
I wondering turned to go, when, lo' my skin
Fell crumpled, and in glass my own face sees
Itself all changed, scarred, careworn, white with years.

—F. G. Scott.

CHAPTER II

Chronology—The March of the Centuries.
"Consider the years of many generations."—Deut. 32:7.

As an army is divided into brigades and regiments and companies, and as, when they observe this order, their march and their tread are majestic, so the time of the world's existence is divided into an army, divinely commanded. The eras are the brigades, the centuries are the regiments, and the years are the companies. Forward!

While obeying the text, "Consider the years of many generations," I propose to write of Chronology—The March of the Centuries. We make a distinction between time and eternity, and chronology has been engaged in the sublime work of dividing up this portion of eternity that we call time into compartments, and in putting events into the proper compartments.

However, as measures of time are mere notions or ideas of motion in the clock-work of the universe, chronology and astronomy necessarily go together, Thus, when we say another year has ended, we mean that the great wheel of time has performed another hour. Thus upon its revolutions on its axis and around the sun, the earth fixes its notions of days and years.

Put there is another movement going on

in this universe of much grander and wider range, and of special importance with regard to chronology. It forms a sacred clock whose face is the sky, and from which the astronomer may read backward for thousands on thousands of years without the possibility of confusion, exactly as we read the hours and the minutes on a timepiece. It is what astronomers call "The procession of the equinoxes." Remember, there is a two-fold year; one called the siderial year, or the year of the stars; and the other, the year of the earth's revolution around the sun. The former is a fraction longer than the latter. That is to say, the equinoxes in our ordinary practical year comes a little earlier every time than the siderial time. This precedence in the equinoctial presentation amounts to about fifty seconds each year, and hence is called the procession of equinoxes. It means that the setting of the stars occurs about fifty seconds later every year.

It was Hipparchus, about one hundred and fifty years before Christ, who first within historic times noted this fact; and since his day the rising and setting of the stars, as compared with the common year, has fallen back about thirty degrees from what their time was then. At this rate of retardation it takes about twenty-five thousand and eight hundred and sixty-eight of our years

for this rising and setting to come back to the exact point at which we began the calculation. We thus have a great astronomical cycle, less than a fourth of which has passed since man was placed on the earth. The cycle furnishes a singularly valuable means of noting and determining remote dates. Knowing the relative places of the stars which most plainly mark this cycle, we can tell exactly how they stood in any year or date since time began; and knowing how they stood at the time of any given event, we can thus calculate the precise year almost to the day and hour in which that event took place.

And finally, when we remember that a day is with the Lord as a thousand years, and a thousand years as one day, and couple with it the fact that when we consider the days of creation, we have to do not only with the earth, but with all the heavenly bodies, it indicates a presence for a siderial method of reckoning time over the days and years as measured by the earth in its rotations and revolutions. In this creation of the worlds, consider the years of many generations, and behold the stupendous march of the centuries.

Historical chronology was at one time calculated from new moon; then from harvest to harvest. At this time the year was pronounced to be three hundred and fifty-four

days; then three hundred and sixty days, and not till a long time after, three hundred and sixty-five days. In one place the events were calculated from the founding of Rome; another from the Olympic games, but most universally from dynasties or the reigns of certain kings. The Babylonians had their chronology, and the Romans theirs; the Armenians theirs; and the Hindus theirs. In attempting to lay a plan by which all questions of date might be settled, and by which events, as far as possible, might be put into their proper place in the march of centuries, chronology had to bring into its service the monuments of Egypt and the cylinders of Assyria; the bricks of Babylon and the pottery of Nineveh; the medals struck at Antioch for the battle of Actium, and, finally all the hieroglyphics that could be deciphered.

It was not until the sixth cenury, A. D., that Dionysius, a Roman abbot, proposed to have events date backward and forward from the birth of Christ. He said: "Let everything date from the birth at Bethlehem, of the Lord Jesus Christ, the Saviour of the World." What a splendid thought for mankind! What an excellent thing for Christianity! Forever it is fixed that all history be dated with reference to the birh of Christ.

This matter settled, the chronology of

the Old Testament takes six steps—six steps only, but they are steps so long that it makes us hold our breath as we watch the march of the centuries. Here they are; six gigantic strides; First from Adam to Abraham; then from Abraham to the exodus from Egypt; then from the Exodus to the foundation of Solomon's temple; following thus from the foundation of the temple to the destruction of the temple; again, from the destruction of the temple to the return from the Babylonish captivity to the birth of Christ.

The geneological tables in the fifth and tenth chapters of Genesis were not, however, designed to teach, and do not teach a definite chronology; but they serve simply to throw emphasis upon the direct line of descent without shedding any definite light upon the length of that time. While we can, in point of fact, go back to Abraham and fix dates with certainty, beyond that pivotal date the only thing that the Bible attempts to do is to fix the line of descent by genealogies. It is not intended to tell us in scientific terms the chronology of the creation of the world, but in religious terms; for a day with the Lord, as we have seen is as a thousand years, and a thousand years as one day.

The Hebrew word "yom" means at times, ages, and again it may mean years

or days. And I wish to emphasize the statement that in Genesis fifth and eleventh, as elsewhere in the Old Testament, the Bible simply means to give the order of events, and does not aim at scientific chronology. In the genealogies in the fifth chapter of Genesis, the generations are mentioned between Adam and Noah, and the age of the parent at the time of the birth of the son who is next in the chain is in each case given; in the eleventh chapter ten more generations between Noah and Abraham are mentioned, and in the same manner; that is, the age of the parent at the birth of each successive son is given in definite figures. By adding together these sums to the date of Abraham (which is 1918 B. C.) as Archbishop Usher did, we get the dates which are found in the margins of many of our English Bibles; namely, of the creation of man 4004 years B. C; and of the flood 2348 B. C.

Upon the face of it, it looks as though there could be here no way of avoiding conflict between a clear Bible statement and the result of modern investigation in geology and archaeology, which give a much higher antiquity to man and to the civilization in Egypt and Babylonia; and the flippant, shallow critic refers to this again and again.

Geology dates the creation of the earth,

etc., in terms of millions of years. Archaeology tells us that long before the date assigned by Usher, for the creation of man, the Egyptians and Babylonians had attained a high state of civilization. The first of the Egyptian kings of whom mention is made upon the monuments of the Nile Valley is Mena or Menes. Manetho had given a statement, according to which Mena must have lived nearly six thousand years before the Christian era. This was looked upon for a long time as utterly inadmissible, as it was so clearly at variance with the chronology of our own sacred books; but as time went on, large fragments of the original work of Manetho were more carefully studied and distinguished from corrupt transcriptions, the lists of kings at Karnak, Saquarah, and the two temples at Abydos, were brought to light and the list of court architects were discovered. "Among all these monuments the scholar who visits Egypt is most impressed by the sculptural tablets giving the lists of kings. Each shows the monarch of the period doing homage to the long line of his ancestors. Each of these sculptural monarchs has near him a tablet bearing his name." That great care was always taken to keep these imposing records correct is certain; the loyalty of subjects, the de-

votion of priests, and the family pride of kings were all combined in this; and how effective this care was, is seen in the fact that kings now known to be usurpers are carefully omitted. The list of court architects, extending over the period from Seti to Darius, throw a flood of light over the other records. After a careful study of the work of Manetho, the Egyptologists of our time concur in fixing the date of the reign of Mena at possibly 4500 B. C.

But the significance of this conclusion cannot be fully understood unless we remember the high state of civilization already attained at this period. Recall now their great engineering and architectural skill as manifest in the Great Pyramid, the canals, dikes, and public buildings. As to sculpture, we have not only the great Sphinx of Gizeh, but we have ranges of sphinxes, heroic statues, showing that even then this branch of art had reached an amazing development.

Their social conditions force us to the same conclusion. Not only did they have a separation between the priests and military orders, but agriculturists, manufacturers, and trades, with a whole series of subdivisions in each of these classes. The early tombs show sculptured and painted representations of a daily life, which even

then had developed into a vast wealth and variety of grades, forms, and usages.

All this, and much more, tells of a development in art, science, law, customs, and languages, which must have required a vast period before the time of Mena. And this conclusion is forced upon us all the more invincibly when we consider the slow growth of ideas in the earlier stages of civilization as compared with the later. Benson, one of the most learned of Christian scholars, declares that for the development of such a civilization no less than ten thousand years were required prior to the time of Mena.

In view of geological and archaeological investigations what becomes of Archbishop Usher's chronology? How shall the boy who goes to college or the university answer? He need only answer that the chronology of Bishop Usher is not the chronology of the Bible—that it is simply the idea of a man, as the chronology of books on geology and archaeology express simply the idea of men. We must not always take them at their face value.

Close study of the subject, however will convince any judicial minds that even the linked genealogical tables of these chapters in Chronicles and in Matthew, were not intended by the writer, nor understood by his readers, to teach a definite chronology, but are inserted simply to show lines of descent,

in which any number of intermediate links may be omitted without interfering with the purpose of the tables. This conclusion is reached, not by speculative investigation, but by the manifest usage of sacred writers in numerous passages and by a careful consideration of the tables themselves.

As one of the most striking examples, we may turn our attention to the first chapter of Matthew, where seemingly the complete genealogical table is given, extending from Abraham downward to Christ. In the first verse of the same chapter, notice also that Christ is called the "Son of David" and the "Son of Abraham." It is obvious here that the names are divided into three groups of fourteen each, and that, to bring within the limit of these numbers, three names are omitted in verse eight. It is said here that Joram begat Ozias. From the book of kings likewise, the three names of Ahaziah, Joash and Amaziah have been omitted; while again in verse eleven, Jehoiakim is omitted after Josiah.

What now is it reasonable to conclude from these passages? Shall we say that the writer of this chapter did not know of the existence of those links which he dropped out? Certinly not, for this is the Gospel that was written by a Hebrew for the Hebrews, and both he and his readers had ready access to, and were devoted believers

in the Old Testament. Besides they were surrounded by Jewish opponents, who would readily find fault with any serious misuse of it. The only explanation, therefore, is that all were so familiar with the use of genealogies to indicate simply lines of descent, without reference to lines of chronology, that nobody thought of raising any question concerning such use.

Turning to the Old Testament, we notice one of the clearest examples in 1 Chron. 26:24, where we read that Shebuel, the son of Gershom, the son of Moses, was ruler over the treasures. Again, in 1 Chron. 23: 15-16, we read that the sons of Moses were Gershom and Eliezer, of the sons of Gershom, Shebuel was the chief. But Shebuel was appointed over the treasury of David four hundered years after Moses; so that eight or ten generations must have intervened between Gershom and Shebuel. Again, in Ezra 7:1-6, the writer of this book, certainly with full knowledge of what was written in the Chronicles before him, gives Ezra's genealogy in the line of Aaron, but in the table skips from Meraioth to Azariah, omitting six names which appear in the parallel passage in 1 Chron. 6: 3-14. The writer certainly knew what he was doing and his readers did not object to this abbreviation, as they were accustomed to it.

These examples illustrate the fact that instead of complete (accurate) chronology the Jews were accustomed to condensed genealogies. There are dozens of instances where genealogical tables are given and where it is clear that the chronological questions with them are not taken into account in the least. The consideration of genealogical tables was with the Jews the rule and not the exception. That the genealogical tables in Genesis fifth and eleventh are abbreviated, is evident from the tables themselves. First, the history of Cain and Abel indicates that Seth was not Adam's first child, as one would infer from the tables. Secondly, no chronology is ever deduced from these tables by the sacred writers. They were used as intended, to indicate lines of descent. There is no computation anywhere in the Scriptures, of the time that elapsed from the creation or from the deluge, as there is from the descent into Egypt, or from the Exodus to the building of the Temple. Thirdly, the structure of the genealogies in Genesis fifth and eleventh also favors the belief that they do not register all the names in these respective lines of descent. Their regularity seems to indicate internal arrangement, which is artificial rather than natural. Thus each genealogy includes ten names, Noah being the tenth, and each ends with a father having three

sons. It seems, therefore, in the highest degree probable that the symmetry of these primitive genealogies is mechanical rather than natural

It is evident, therefore, that the Scriptures furnish no date for a chronological computation prior to the life of Abraham; and that the Mosaic records do not fix, and were never intended to fix, the precise date either of the flood or of the creation or of the length of the days of creation. Thus, it is evident that the flood and the creation occurred much earlier than would appear from chronology ordinarily obtained from the scriptural language.

What then of the "days" spoken of in the first chapter of Genesis? Were they days of twenty-four hours, as the days with which we are so familiar, or were they epochs, periods, or eras or time? The Christian here is free to take his own choice in the matter. As for me I choose to consider those days long periods of time. And here I desire to add that science did not alone suggest this idea to the Christian. The Scriptures plainly indicate that "day" (the Hebrew yam) often signifies indefinite periods of time. In Genesis 2:4, we read: "These are the generations of the heavens and of the earth when they were created, in the day (yam) that the Lord God made the earth and the heavens."

If we are to take the word "day" to mean twenty-four hours, then this verse says that the heavens and the earth were created in one day, and not in six, as stated in the first chapter. But if we are to understand by "day" an indefinite period of time, then the matter is clear enough: viz; that the first account shows a series of steps in creation, and the second statement is a summing up of the whole of these acts within the entire period occupied by creative processes.

Again, God told Adam that in the day he should eat of the forbidden tree he should surely die. If in this case an ordinary day was meant, then he should have expired before midnight on the day of his disobedience, and we know that he did not expire on that day. In Duet. IX: I, Moses says: "Hear, O Israel, thou art to pass over Jordan this day," and yet he knew that they would not do so until after his death. Another instance will suffice for my argument. In Ps. XCV:VIII we find, "Harden not your heart, as in the provocation, and as in the day of temptation in the wilderness." Here the word day would mean forty years. Again, if in Daniel a week meant seven years and seventy weeks meant four hundred and ninety years, it is quite evident that the words days and weeks had frequently a wider meaning than that which they now convey. Still

another authority to substantiate this—one who indeed lived before the dawn of physical science. He was, moreover, a good Hebrew scholar, and read, many times, Genesis in the original. I refer to the Apostle Peter, II Pet. III:8. "but beloved, be not ignorant of this one thing, that one day (yam) is with the Lord as a thousand years, and a thousand years as one day (yam).

But lest the geologist fall into the error of contradicting nature itself in making those periods or epochs too long, he should also remember that it is a law of nature that subordinate formations arise more rapidly than the higher ones; and furthermore that life in the warm glowing moments of its origin moves more rapidly than its later and more matured development. For example, if a man continued to grow as rapidly for the twenty years required to attain his full stature, as during his pre-natal state, he would increase beyond the tallest cedars of Lebanon or the giant trees of California. Then in reality we would see "men as trees walking."

We recognize that many times the Bible of Grace has been misinterpreted, and that more often still the expounders of the Bible of Nature have been untrustworthy. Nevertheless, it is significant that in the main there is harmony between science and

religion, and it is this agreement that I desire to point out in this book. But we must continually discriminate between the commentaries and the original text. It is in the latter that we affirm that there is complete harmony.

CHAPTER III

Creation—Its History In Nature

Let us now look at the title-pages of the Book of Nature and the Book of God's Word. So remarkable is the co-ordination between the inferences of science and the statements of Genesis that they lead such a competent and cautious geologist as Prof. J. D. Dana to pronounce it "utterly unexplainable on any other than the theory of Divine inspiration of the author of Genesis." Looking at this general order from his point of view as a scientist—not considering the question of religion or inspiration—Quenstedt, the well-known professor of Geology and Paleontology in the University of Tuebigen, became enthusiastic and wrote thus: "This Moses, no matter where he obtained his learning, whether from Memphis or Babylon, was a great geologist." As regards the creation of the plants this same distinguished scientist says: "Here also the venerable Moses is right; because the algae are the first organisms."

This is refreshing to hear such distinguished authors in their field of knowledge

recognize from their viewpoint the truth of the Bible account. Men who are honestly seeking after the truth and are not simply feigning wisdom above their fellows might well "sit up and take notice" when Quenstedt and Dana speak. No matter what theory we hold geologically, whether it be that of the Catastrophists, the Uniformitarians, or the Evolutionists, we all alike recognize that, according to Genesis, the universe was brought to its present condition, not instantaneously, but by progressive stages, corresponding in a remarkable degree to the actual order as inferred by modern science.

In the first place, it is not surprising that, in the unscientific age in which the book of Genesis originated, a writer should have spoken of the creation of light before sun, moon and stars. I have known people, among them the editor of a fairly respectable daily paper, who ridiculed the account in Genesis on the basis of this statement. But to those rightly informed in astronomy, this corresponds with the discoveries of science which have ascertained that light is the result of chemical action. Ether, says the astronomers, condensed and formed luminous nebulae, which afterwards still further condensed into suns and worlds. Astronomical science points to the theory that before there was earth, sun, moon and stars, all

space was filled with bright nebular matter, having the appearance of the light of the milky way, or the diffused light of a comet's tail." This nebular matter was in motion, revolving around an indefinite number of foci, and gradually collected until out of it were formed earth, sun, moon and stars. One of the very first results of the accumulation of this nebular matter would be the creation of light, which, as in the case of electricity and heat, is but a mode of motion. As the Nebular Hypothesis has attained to a doctrine of science, it is evident that both science and the Bible say that there was light before the sun was created. Referring to this theory, S. Newcomb speaks of Genesis 1:3 as being in perfect accord with it, light before the sun, moon and stars.

The second stage as mentioned by Genesis tells in remarkable terms of the formation of a firmament subsequent to the formation of light, and previous to the appearance of dry land—thereby it meant a firmament which separated the waters above from the waters below. Although the Egyptians thought that the sky was a solid canopy, in which were placed the sun and stars, and although Moses was educated in the Egyptian schools and took care to teach the Israelites in phrases familiar to them, he did not use the word signifying firmament, but the word rakiang, to expand, "to stretch out."

It seems to me it will be helpful at this point to remember that elements chemically united, frequently occupy very much less space than when they are disunited. For example, a cistern twenty feet by twenty feet at its base and thirty feet high, would contain twelve thousand cubic feet of oxygen and hydrogen in a gaseous state. The same elements combining to produce water would occupy only one cubic foot. At this time the earth must have been a mighty caldron where the Divine chemistry was elaborating the materials of its ultimate condition. As the earth continued to cool, a time arrived when its temperature became insufficient to maintain in a state of vapor the vast masses of water which floated in the atmosphere. These vapors would pass into a liquid state and then the first rain would fall upon the earth.

There is scarcely any doubt that the earth was at one time a molten mass, with a temperature of two thousand degrees (centigrade) above zero. Nearly all authors agree in this. And so, evidently, during the long time which would be required because of the tremendous heat to cool the earth's crust to a temperature of five hundred degrees to six hundred degrees above zero, there could have been no water upon it. At the same time it must, however, have been surrouded at some distance by a cloud

of vapor of immense thickness, so dense that it could have been cut with a knife. This cloud of vapor could have been removed and broken up only after a very long period of time, though the gradual cooling of the earth would remove it; a considerable portion of it would then locate upon and enter the earth, while the remainder would pass off in the clouds, thus producing firmament—a separating of the waters below from the waters above. I quote the words of a distinguished scientist: "It would be difficult to chose a brief statement of the case which should more happily express in phenomenal language that stage of creation brought into view by modern science, in which the nebulous matter became localized, and separated into revolving systems, such as the astronomer now delights to study." In a word, both astronomy and Genesis say that the second stage of creation is characterized by the localization of the nebulous matter—that is, a firmament separating the waters above from the waters below.

In his query as to which were created first, plants or animals, Grant Allen says that such a question is as absurd as if we were to ask which were first, beasts of prey or the animals they preyed upon. So far as known, animals are not able directly to assimilate mineral matter. This the plants

must do for them, and hence their precedence. Plants also will endure a much higher temperature than any known animal. Some forms of plant life will even survive a temperature of two hundred and twenty degrees above zero; that is, they would not be destroyed by boiling water. They could have lived at a much earlier period in the history of the earth than would have been possible for animals. We read of the plants on the first pages of the earth's history. In the earliest known rocks, viz., the Archaean, there are extensive deposits of graphite or "black lead." It must be remembered that this, though called black lead, is not lead at all, but pure carbon or coal, and of vegetable origin like other coal.

Very evidently, the plants of the coal period did not depend on the light of the sun. Hugh Miller speaks of the thick cloud which wrapped the earth as with a mantle, during the earlier geological periods, and in that connection compares the earth to a vast greenhouse covered with smoked glass. He means to say that, at the time when the earth, as is manifest in the rocks, brought forth most luxuriantly the same kind of vegetation all over it, the same temperature must have prevailed everywhere. This is due to the fact that the earth was mantled by a dense cloud of vapor so thick that the sun's rays could not penetrate it. It is in-

teresting to remember that it is precisely this method which is pursued today in securing the best results in growing the species of those early days. If you visit any large garden you will find that most of the fern-plants are in greenhouses, from which rays of the sun are cut off by thick glass, colored green, and that the temperature is kept at an equal warmth the whole year round, whilst the atmosphere is saturated with moisture.

Every observer of plant life knows also that the Thallophytes, Bryophytes and Pteridophytes, lichens, mosses, and fern allies, grow most luxuriantly in the conifer forests which are so dense as scarcely to allow the rays of the sun to reach them. I will add yet another interesting fact which will aid us in these considerations. In the Pacific Ocean, off the coast of Chili, there is an island named Chiloe, where it rains for three hundred days in the year, and where the light of the sun is shut out by perpetual fogs. On this island, says one writer, "arborescent ferns form forests, beneath which grow herbaceous ferns, which rise three feet and upwards above a marshy soil, and a mass of cryptogamia plants flourishes there, resembling in its main features the flora of the coal fields."

Some have offered objections to the account of the creation of the vegetable king-

dom in Genesis on the ground that it describes the higher species of plants, which in reality are introduced at a much later date—such as grass and fruit trees. They contend that the account should be confined to the older orders of the vegetable kingdom; such as Algae, Fungi, and Lichens; the Club-Mosses, the Fern Allies, and so on. A better translation of the St. James's version regarding the advent of vegetable life will prove the correctness of the statements of Moses. I have consulted a number of authors, all of whom confirm Dr. Kitto's explanation of this verse: viz., that the Hebrew word deshe, translated "grass," is applicable to every kind of verdure in the state of sprouting. How natural here to think of Algi, Fungi, and Lichens, the lowest forms of plant life! Esebh, rendered "herb" denotes a higher order of plants propogated by seeds. 'Est P'ri, "fruit trees," may refer to cone-bearing trees and those of other Devonian and carboniferous periods. The seed vessels of that period might be properly styled fruit.

Of the fruit of this period, I must especially mention that of the trigonocarpon, which at one time was supposed to be the fruit of the palm, but Sir Joseph Hooker states that it may be referred to that large section of Coniferous plants which bear fruits and not cones. "On the whole," says Joseph Hooker, "these fruits are

preferable to a highly developed type exhibiting extensive modifications of elementary organs for the purpose of their adaptation to special functions; and these modifications are as great and the adaptation as special as any to be found amongst analogous fruits in the existing vegetable world." The earliest forms of vegetable life were cryptogams, such as the algae, lichens, fungi, and ferns propogated by spores and not by seeds. Dr. Hicks has found ferns in the lower places in Wales.

Following the cryptogamic plants came the lowest class of phaenogams, or flowering plants called gymnosperms such as the conifers. Dana says that conifers were found in the lower Devonian. These were followed by a higher class of phaenogams, or flowering plants, bearing a low order of fruit, found in the middle Devonian and Carboniferous strata "Spores, seeds, fruit" is the order given in Genesis. This same order is written on the strata of the rocks.

Now let us turn to the Bible of Grace, and here I will quote the words of Dr. E. P. Borrows: "In our view Moses, in describing the creation of the vegetable kingdom on the third day describes neither the creation of the particular existing species as contrasted with the extinct species of former ages, nor of these extinct species as contrasted with the species now existing. But

he describes the establishment of the vegetable kingdom in its laws and general forms which are valid for all the subsequent geological eras."

The grand fact revealed is, that on the third day the vegetable world was brought into being under the immutable principles which now regulate its operations. And we ask: Why is this not a fair interpretation of the words, "and the earth brought forth grass, the herb yielding seed after its kind, and the tree yielding fruit whose seed is in itself, after its kind?" The reader will notice that the two things made prominent in this account are law, as expressed in the formula, "after its kind, and general forms "grass, 'herb', fruit-tree,' yielding fruit is in itself."

And so the very strata of the rocks (on the third page of the book) accord with the account in Genesis; viz., that on the third day the vegetable world was brought into being under the immutable principle, which regulate its operation even to this day.

In the description of Genesis, the fourth grand stage in the creative plan tells of the establishment of days and seasons upon the earth through its relation to the sun and moon. "God set them in the firmament of the heaven to give light upon the earth and to rule over the day and over the night." Previous to this time, it is

generally supposed that there was no darkness upon the earth, though it was surrounded by dense clouds, which at the same time (had there been eyes on the earth to see) hid the view of the sun from an observer on the earth. These clouds were luminous bodies filled with electrical disturbance somewhat like those of the Aurora Borealis of our day.

This description of Genesis does not mean that the sun, moon, and stars did not already exist, but that now, for the first time, they fulfilled the object for which they were "set in the firmament," viz., for signs and seasons and days and years. In the first chapter of Genesis a quite different word, in the original, is used to express "created." Here the word used should be translated "appointed." It should read: "And God appointed, etc." In I Kings, XII:XIII; I Sam. XII:VI, etc; the identical word is translated, appointed. I have intimated before that the sun, moon and stars must have been created contemporaneously with the earth, but that during the early ages of the world much of their light was hidden from our globe by the dense vapors which surrounded it; that, up to the time now under consideration, a similar climate existed all over the earth; and that, consequently, there were no seasons properly so called until after the car-

boniferous period. When, however, the sun blazed forth in all its glory, then seasons began, as both flora and fauna testify.

In the Permian epoch, the profuse vegetation of the Carboniferous period no longer existed; but the fossil remains of plants show a great increase of woody tissue, which could only have been produced by the presence of unclouded sunlight and its magic effect upon chlorophyll. All the trees and plants previous to this time were of a soft and pulpy nature (like the endogenous plants of our day) which is manifest from the fact that huge trunks, compressed and flattened, are found in the coal; that is, when they are in a horizontal or inclined position. Doubtless these would have been cylindrical if the wood had been of a hard texture.

How different now when we come to the flora of the next higher strata, such as the Trias, the Juras, and so on, for there we find season-rings—exogenous plants. The animals from the Silurian up to the end of the Carboniferous era, in widely separated districts all over the earth, correspond to one another. Those of the Trias and higher periods, on the other hand, are very dissimilar in form and appearance when found in localities distant from one another, while the organisms of the Tertiaries in different latitudes differ as much

from each other as the animals and plants of our own era.

Do you ask wherefore this sudden change in the fauna and flora? The answer is obvious. The sun began to shine upon the earth. The facts indicate that, previous to the Permian age, there was a uniform climate which was probably the result of central heat diffusing an equable temperature throughout the whole earth. This equability ceased, and a diversity of climate, of which the sun was the principal cause, began, and has existed since then throughout the world; consequently, the sun became at this era not only the visible sign for distinguishing days and years, but also the efficient cause of the seasons.

When the earth's swaddling bands of clouds were all one blaze of electric light, the sun did not divide between the darkness and the light, and the moon and the stars did not rule over the night. They could do this only when they became visible from the surface of the earth. Here also there is unanimity, the indication of a common author.

We come now to the order of life, as it is described in Genesis, and as it is revealed to us by the geologist's crowbar. While we do not expect scientific literalism nor scientific details in so brief a statement as is given by Moses, such as it would be

natural to look for in an extended scientific treatise, at the same time the Biblical account in its general outlines is remarkable for its co-ordination with the discoveries and inferences of geology. I repeat the origin of life in the order which here follows. It is the order of life as set forth in the first chapter of Genesis: first, plants; second, animals that swim in water and fly in the air; third, reptiles; fourth mammals; fifth man. That is essentially the order as recorded on the rocks. Geologists differ in their opinions, it is true, but here there is remarkable agreement. As already stated, Genesis puts vegetation first in this order; Science does likewise.

Following the order as given in Genesis, we next find aniamals that swim in water and fly in the air. This comprised the Silurian and Devonian periods geologically. Associated with the fact that birds and fishes were created on the same day as revealed by the Bible and confirmed in the rocks, their remarkable analogies in fundamental characteristics are worthy of note. Both birds and fishes have fan-like tails, serving as rudders; both have hollow bones, filled with air; one has wings for flying, the other fins for swimming; both have unusually strong means for locomotion; and both possess an unaccountable instinct for migration. Associated with the command

"let the waters bring forth abundantly," we read, "and fowl that fly above the earth." Geologists tell us that during the Silurian, and especially during the Devonian periods, the waters brought forth abundantly—that the seas literally swarmed with life trilobites, brachiopods, crinoids, cephalopods, and fishes. The Devonian has been called the age of fishes, not with the idea of asserting that those were the only animals, but merely that the most noticeable creatures were true fishes. They were, however, not like the food fishes of today but rather mail-clad forms and species like the sharks.

Turning another page, we come to the first chapter on birds. I think I am stating it correctly, up to the last hour, as regards the record of birds, when I say there is no trace of life until we come to the New Red Sandstone of the Trias. In none of the great trees of the carboniferous epoch can it be seen that birds built their nests. The tall sigillaria, the gigantic calamites, and the thick bushy ferns, had none of those beautiful forms of life fluttering about them, and imparting the additional charm they now lend to our forests. In the Connecticut Valley, and in more than twenty places in Massachusetts, Dr. Deane discovered footprints of no less than thirty species of birds.

As in the Trias we first find traces of

birds, so on the next higher strata, we suddenly come upon those huge sea-monsters, amongst the most important of which are the Ichthyosaurus and Plesiosaurus. This is the age of Reptiles, the age of the great saurians. The chapter which records their advent follows that of the birds. The Bible of Grace speaks of fishes, birds and sea monsters. That is the order of the record on the rocks also. The reptilian family, biblically and geologically, preceded that of the true Mammalia. The former, acording to the Bible, were water animals; the latter were land animals, such as cattle and beasts of the earth. The very names of those great reptiles antedating land animals were marine and lacustrine.

In the fifth edition of LeConte's Geology page 502, that standard author names the four large Reptilian orders, viz., Enaliosaurs, Dinosaurs, Plesiosaurs, and Crocodilians, and on the same page tells us that their fossils were found in marine and lacustrine (lake and swamp) deposits. That means that they lived in and about those early lakes and swamps and died there. On the same page he adds still another order; viz., Mosasaurs, and says that they were "wholly marine in habits." Moreover what child does not know the marine habits of the Crocodilians? The very word Enaliosaurs means marine lizard. It is evi-

dent that the "great whales"—saurians—of the Bible account and the reptilian family of geology, coincide in the fact that they were pre-eminently marine in habits, whereas the "beasts of the earth and cattle," that is, the mammals which followed later, were pre-eminently the land animals.

We do not mean to draw the lines so sharply as to say that no mammals are found in the sea and that no reptiles are found on the land. The whale suckles its young in the sea, and occasionally a crocodile comes up out of the water to sun itself on the river's brink or on the shore of the lake. But we do mean to affirm the accounts, both of nature and of revelation, that the reptilian family which preceded was composed pre-eminently of marine animals; while the mammals which followed were pre-eminently land animals in the carboniferous period, and some saurians called Labyrinthodonts existed in those early days. In the Triassic period there were some large saurians and also others in the Colite; but it was during the latter time of the Ichthyosaurus that numerous monster land animals appeared such as the Palaeotherium, the Dinotherium, the Megatherium, the Mastodon. Surely they are rightly called the "beasts of the earth." The oxen which existed in the Post-Pliocene period, if not identical with, was at least very near to our

living species. The first fossil remains of the ox, deer and elk are found in a later stratum than the monster land-animals just named, and that also corresponds to Gen. 1:25—"and God made the beasts of the earth after their kind and cattle after their kind."

I venture to affirm now that no recognized geologist ever gave any other order of life on the earth than the following:

1. Plant life—Laurentian period, etc.
2. Fishes—Silurian and Devonian periods, etc.
3. Birds—Triassic period, etc.
4. Reptiles—Jurassic and Cretaceous periods, etc.
5. Mammals—Eocene and Miocenne periods, etc
6. Man—Psychozoic Era.

I have said nothing regarding the recent advent of man, for the reason that it is universally recognized that last of all "God created man" to "have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." It seems to me that the geologist, after he has read the handwriting on the strata of the rocks, and then takes his Bible and there reads the same record, can arrive at no other conclusion than that the same God who overhung the galleries of the coal mines with such beautiful proportions of extinct vegetable forms and

covered the roofs thereof with so gorgeous a canopy of tapestry, enriched with festoons of the most graceful foliage over all its surface, that the same God who has given us a record of life on every stratum of the rocks, must be the only personality in all the universe who, in an unscientific age, could have inspired his servant Moses in such a way that he could give us a record that would harmonize with the geological record in such remarkable degree. Here are facts that the skeptic might well ponder, for if he is rational, he must account for this harmony, and this can be done in but one way; viz; that God is the author both of the Bible of Nature and the Bible of Grace.

"Lest we forget" the bow in the cloud:
"When o'er the green, undeluged earth
Heaven's covenant thou didst shine,
How came the world's gray feathers forth
To watch thy sacred sign!
And when its yellow lustre smiled
O'er mountains yet untrod
Each mother held aloft her child
To bless the bow of God.
How glorious is thy girdle cast
O'er mountain, tower, and town,
Or mirrored in the ocean vast,
A thousand fathoms down,
As fresh in yon horizon dark,
As young thy beauties seem,
As when the eagle from the ark
First sported in the beam.
For faithful to its sacred page
Heaven still rebuilds thy span,
Nor lets the type grow pale with age
That first spoke peace to man."

Campbell.

CHAPTER IV

The Flood—Its History in Nature.

In the year 1823 the Rev. William Buckland, D. D., F. R. S. published a book en-

titled "Reliquiae Deluvianae" (Relics of the Flood.) I believe he was the pioneer in this matter as regards the Bible record of the Deluge, calling attention, as he does, to the fact that the very earth on which we tread from day to day bears testimony to the account of the flood as given in the Scriptures. Dr. Buckland's observations were, for the most part, limited to the Ossiferous Fissures. But he set the pace, and since his day many others, with a much wider range of observations, have put their findings on a firm foundation. Strange indeed that traditions of a flood are found among nearly all the nations and tribes of the world; but stranger still is the fact that recent geological investigations have reduced the marvel to such reasonable proportions that no one need hesitate to accept the Biblical story, when properly interpreted, upon the strength of the documentary evidence.

Space will not permit me to do more than attempt to make clear to the average reader the fact that in this matter of a deluge, the earth itself, as read by most faithful and trustworthy geologists of recent times, bears a similar testimony to the recorded deluge of Genesis. Anyone who desires to enter more largely into this subject, I would direct to the very elaborate monogram by Prof. Joseph Prestwich, F. R. S.

The facts revealed by geologists go to show that about six thousand years ago, since man has appeared on the earth, a widespread submergence of northern, central and western Asia, Europe and North America, occurred which was followed by a still more rapid uplifting of the continents, with numerous very sudden catastrophies. Such a continual dropping, amounting to about fourteen hundred feet in Western Europe and about three hundred feet in Central Asia, would convert into one great sea, all European Russia (except the Ural Mountains,) all western and northern Siberia and the Aral-Caspian basin; it would make Baikal Lake an arm of the Sea, and let oceanic water into the Desrt of Gobi, and thus fill a basin in Central Asia larger than the Mediterranean Sea. Similar results would follow in the entire valley of the Euphrates, and about the borders of Armenia. That we may grasp the full meaning here, it is important to realize that by this hypothesis of submergency, with a corresponding emergency, a large and accumulating class of facts dovetail, which, indeed, refuse any other explanation.

Before naming the facts, however, let me briefly state the reason for the hemispheres playing see-saw in the manner indicated. Many are agreed that the interior of the earth is a molten mass—plastic—verily like a sea

on which the relatively thin crust of the earth rests. This crust of the earth is like a pontoon bridge—the more you pile on at one end the higher it will rise at the other. At the time of the glacial epoch, snow accumulated over about six million square miles of North Amercia and northern Europe. Under the pressure of its own weight, this snow consolidated into ice until it attained a depth of a mile. This is known from the fact that it covered the top of Mt. Washington in New England, leaving foreign boulders on its very summit. At the present time the thickness of the ice covering Greenland, especially the central part, is probably much more than this. This would mean an accumulation of six million cubic miles of ice distributed over the northern hemispheres at the close of the glacial period.

Now, to furnish this amount of snow an equal amount of water was lifted from the ocean—an amount sufficient to lower the ocean level two hundred and fifty feet the world over. It has been estimated that the total amount of weight thus transferred from the ocean to the northern part of Europe and America would be twenty-four thousand million million tons. According to one estimate, the weight of the entire continent of North America would be (estimating the ice to be one mile deep) only

one-third more than that of the ice of the glacial epoch; if the ice was two miles deep, it would be one-third less.

The plasticity of the earth is proven by a wide range of geological facts. The equilibrium is indeed so delicately balanced that it is very easy to believe that the glacial epoch produced such a temporary instability as is described in the story of the flood. The very fact that the ocean was relieved of such a tremendous weight by the abstraction of three hundred feet of water from its entire surface, would no doubt produce the see-saw motion between the continents. In the readjustment of parts the Asiatic continent would sink of itself and then rise again as soon as the ice was melted. The waters would then return to their natural position, leaving many marks behind of their downward rush as the mountains and hills were perhaps rapidly lifted. The ill-founded criticism of the Biblical account of the Flood claims that there is not water enough in all the oceans to cover the tops of the highest mountains. Such shallow flippancy overlooks the fact that the Biblical account represents the flood as caused, not so much by the rising of the water, as by the sinking of the land. It says that all the fountains of the great deep were broken up.

The glacial epoch is of recent date and in this respect can easily be harmonized with

the Bible chronology, as I have already explained in the third chapter of this book. Nearly all of the water-falls in the glacial regions came into existence and began erosion since the melting of the ice of that period. And so, by actual measurements compared with those made fifty years ago, it is shown that the wearing away of the rocks of the falls of St. Anthony, Niagara, and others, is at the rate of nearly five feet per annum. This would place the beginning of these various cataracts at about 500 B. C., at which time there was a high civilization both in Babylon and in Egypt. Because so many falls have thus been tested, and such harmony in the rate of erosion observed, the date is almost a fixed quantity.

Another fact corroborative of the world-wide submergence theory is well established; viz., that at the close of the Miocene period (geologically) on both continents there occurred a remarkable extinction of animals. Among these there were three species of dolphins, a walrus, and two species of the sea-cow; two species of bears, four species of the dog family, and two of the cat family as large as lions; six species of the horse, two species of elephants and two of mastodons; two species of bison, a camel, and three species of sheep; a species of megatherium, huge and terrestial sloths

as large as the rhinoceros which ranged over the southern states as far north as Pennsylvania.

The sudden blotting out of a large list of animals in the old world at the same time is equally remarkable. The number is very large, but I will simply name one species, the mammoth. The largest of them fairly swarmed over the plains of Siberia and spread over all western and central Europe.

So recently has the mammoth become extinct in Siberia, that one is still occasionally found frozen in the ice with the flesh undecayed. When Columbus discovered America, the horse, which lived and flourished up to a recent geological time, had entirely disappeared from the continent. . Russel Wallace says: "It is surely a marvelous fact, this sudden dying out of so many large mammalia, not in one place only, but over half the land surface of the globe. We cannot but believe that there must have been some physical cause for the great change; and it must have been a cause capable of acting almost simultaneously over large portions of the earth's surface."

Startling also is the announcement that at Lansing, Kansas, near Leavenworth, a human skeleton was found buried at the base of an undisturbed section of loess (a deposit of the glacial period), showing that man was in the valley of the Missouri River

before these floods, and very likely was exterminated by them.

At Kief, on the Dneiper River, in the western part of Asia, Prof. Armaschevsky has found human implements and burnt stones in connection with the bones of extinct animals, at a depth of fifty-three feet below the undisturbed surface of the glacial deposit of loess which covers the region. This discovery was at an elevation of three hundred feet above the river, where an old camping place of paleolithic men rested on the surface of a geological deposit containing granite pebbles from Scandinavia, about two hundred miles away.

The ultimate origin of the deposits of loess is glacial. For microscopic examination shows that the particles of loess the world over are of mechanical origin. Chemical analysis also shows that loess is not clay, but extremely fine sand, with a little carbonate of lime. In the United States it is practically limited to those portions of the Mississippi and the Missouri Valleys contiguous to the glacial area and to the lines of drainage leading from it. In Europe the great deposits of loess are those over the southern plains of Russia, which form the belt of black earth which produces such wonderful crops of wheat and other cereals. In Central Europe and in Central Asia the deposits may easily have been derived from the Alps

and the high mountains of Central Asia. Similar extensive deposits of loess occur in the valley of the Araxes in Armenia, up to the very base of Mt. Ararat, where tradition says the ark rested.

The facts connected with loess everywhere strongly confirm other evidences pointing to the occurrence of a recent catastrophe analogous to the Bible account of Noah's flood. A single illustration must suffice. The greater part of the island of Guernsey in the English Channel consists of a plateau of granitic rocks from three hundred to three hundred and fifty feet above the sea level, but without any commanding heights. The plateau is covered by a deposit of loess from five to ten feet thick extending over the highest points of the surface. In character this is identical with that on the mainland. Profs. James, Geikie, and Prestwich, tell us that it is not possible to account for this deposit of loess on any of the theories of river floods, glacial inundations, or rain wash as the distributing agencies. Submergence and re-elevation from beneath deep water is the only true history.

At Sangatte, in France, and at many places in the south of England, there are deposits of angular gravel containing paleolithic implements and the bones of many extinct animals associated with prehistoric men. This deposit bears no relation to

the present drainage system of the country, and shows clear marks of rapid and tumultuous accumulation. The drift is found at elevations of nine hundred feet and far removed from the ocean, and certain broken bones of many species of extinct animals in such a perfect state as to show that they could not have been transported for a long distance. They show signs of fracture, but not of wear. Prof. Prestwich described about twenty-five of these rubble drifts which occur in southern England alone. These drifts differ from all ordinary gravel in that (1) the fragments of stone and the fractured bones retain their sharp angles; (2) the material is all of local origin; (3) there is a total absence of marine shells. Submergence and re-elevation were evidently too sudden for marine animals to make them their home.

"Ossiferous fissures abound in the limestone regions of South England, on the Island of Sicily near Palermo on the rock of Gibraltar, and on Mt. Santenay. They are fissures in the rocks open at the top and extending down perpendicularly or nearly so to the depth of three hundred feet and more. These fissures are filled with a mixture of broken and splintered bone, the fractured edges of which are unworn and sharp. They are rock fragments, earth and clay through which lime has filtered, the

mixture of which is called breccia. The bones of the animals found are essentially those representatives of extinct species already named in the first part of this chapter.

That these fissures have been filled from above is acknowledged by all. That they did not fall in, as by accident, is evident from the fact that in no case has a complete skeleton of any animal been found, or scattered bones to complete a skeleton. The question then arises how to account for this mixture of sharp-edged bones and stones in a deep crevice at the very top of a mountain —especially, how to account for such a mixture of herbivorous with carnivorous animals, their avowed enemies. It could only have been a great and common danger, such as the sinking of the earth and the encroachment of the sea, that could have so paralyzed their natural instincts as to have driven those various animals to flock together in search of a common place or refuge, as the top of Gibraltar, for example, from a catastrophe which threatened all alike. But the hills sank beneath the waters and they were drowned; and when the hills suddenly emerged, the downward current of the water presumably carried their bones into the crevices.

In the Sicilian area there was an amphitheater of steep hills encircling the great plain on all sides except the seaward side, on

the slope of which the Cave of San Ciro is located. Granting the submergence theory, as the waters rose, the area became more and more circumscribed and retreat more and more impossible, until at last the great herds of hippopotami and other wild animals were dirven together at the base of the hill, where the heavier animals were stopped by impassable precipices, while the more agile escaped to the mountain beyond. Hence their bones are not found here. Retreat being entirely cut off, the only paths yet open to the imprisoned herds were those that led to the cave, a little above the level of the plain. Hither they must have thronged in multitudes, rushing into the caves where, overtaken by the water, they perished. As the land rose from beneath the water (per hypothesis) the rocky debris in the sides of the hills was hurled down by the effluent waters on the piles of bones below. More than twenty tons of bones were shipped from this one place for commerical purposes during the first six months after their discovery.

Add to all this the fact that at the present time there are arctic seals in the waters of the Caspian Sea and Baikal Lake, and you will find that there is no theory that will account for the facts, apart from the theory that accords with the account of the flood in the days of Noah. The fountains of the

deep were opened and the waters returned from off the earth. The earth was submerged and re-elevated from beneath deep waters after a brief time. The pages of Nature's Book read like the Bible of God's Word.

Still further confirmation is added to the account of the flood as found in the Bible of Nature and the Bible of Grace, when we remember that similar traditions are found among nearly all the nations and tribes of the world. Indeed so persistent and widespread are these traditions that those who have carefully studied the subject cannot resist the conviction that they relate to a common event with which the ancestors of the world's present population were eyewitnesses. This tradition, as might be expected, took on such a local coloring and extravagant inventions that the kernel of truth has become much warped. The account in Genesis stands out conspicuously among them all as the Divine Word revealed of God in connection with the catastrophe. That the reader may compare it with the Bible narrative, and for convenience, we place on opposite pages the Bible story and a translation of the cuneiform tables discovered by George Smith about 1870 and supposed to date back at least as far as 300 B. C.

BIBLE ACCOUNT

"Gen. VI. 5. And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. 6. And it repenteth the Lord that he had made man on the earth, and it grieved him at his heart. 7. And the Lord said, I will destroy man, whom I have created, from the face of the earth; both man, and beast, and the creeping thing, and the fowls of the air; for it repenteth me that I have made them. 8 But Noah found grace in the eyes of the Lord.

"9. These are the generations of Noah: Noah was a just man and perfect in his generations, and Noah walked with God. 10. And Noah begat three sons, Shem, Ham, and Japheth. 11. The earth also was corrupt before God, and the earth was filled with violence. 12. And God looked upon the earth, and, behold, it was corrupt; for all flesh had corrupted his way upon the earth.

"13. And God said unto Noah, The end of all flesh is come before me; for the earth is filled with violence through them: and, behold, I will destroy them with the earth. 14. Make thee an ark of gopher wood; rooms shalt thou make in the ark, and shalt pitch it within and without with pitch.

15. And this is the fashion which thou shalt make it of: The length of the ark shall be three hundred cubits, the breadth of it fifty cubits, and the height of it thirty cubits. 16. Window shalt thou make to the ark, and in a cubit shalt thou finish it above and the door of the ark shalt thou set in the side thereof; with lower, second, and third stories shalt thou make it. 17. And, behold, I, even I, do bring a flood of waters upon the earth, to destroy all flesh, wherein is the breath of life, from under heaven; and every thing that is in the earth shall die. 18. But with thee will I establish my covenant; and thou shalt come into the ark; thou, and thy sons, and thy wife, and thy sons' wives with thee. 19. And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee; they shall be male and female. 20. Of fowls after their kind, and of cattle after their kind; of every creeping thing of the earth after his kind; two of every sort shall come unto thee, to keep them alive. 21. And take thou unto thee of all food that is eaten, and thou shalt gather it to thee; and it shall be for food for thee and for them. 22. Thus did Noah; according to all that God commanded him, so did he.

VII. And the Lord said unto Noah, Come thou, and all thy house into the ark; for

thee have I seen righteous before me in this generation. 2. Of every clean beast thou shalt take to thee by sevens, the male and his female; and of beasts that are not clean by two, the male and his female. 3. Of fowls of the air by sevens, the male and the female; to keep seed alive upon the face of all the earth. 4. For yet seven days, and I will cause it to rain upon the earth forty days and forty nights; and every living substance that I have made will I destroy from off the face of the earth. 5. And Noah did according to all the Lord commanded him.

"6. And Noah was six hundred years old when the flood of waters was upon the earth. 7. And Noah went in, and his sons, and his wife, and his sons' wives, with him, into the ark, because of the waters of the flood. 8. Of clean beasts, and of beasts that are not clean, and of fowls, and of every thing that creepeth upon the earth, 9. There went in two and two unto Noah into the ark, the male and female, as God had commanded Noah. 10. And it came to pass, after seven days, that the waters of the flood were upon the earth. 11. In the six hundredth year of Noah's life, in the second month, the seventeenth day of the month, the same day were all the fountains of the great deep broken up, and the windows of heaven were opened. 12. And the

rain was upon the earth forty days and forty nights.

"13. In the selfsame day entered Noah, and Shem, and Ham, and Japheth, the sons of Noah, and Noah's wife, and the three wives of his sons with them, into the ark; 14. They, and every beast after his kind, and all the cattle after their kind, and every creeping thing that creepeth upon the earth after his kind, and every fowl after his kind, every bird of every sort. 15. And they went in unto Noah into the ark, two and two of all flesh, wherein is the breath of life. 16. And they that went in, went in male and female of all flesh, as God had commanded him: and the Lord shut him in. 17. And the flood was forty days upon the earth; and the waters increased; and bare up the ark, and it was lifted up above the earth. 18. And the waters prevailed, and were increased greatly upon the earth; and the ark went upon the face of the waters. 19. And the waters prevailed exceedingly upon the earth; and all the high hills, that were under the whole heaven, were covered, 20. Fifteen cubits upward did the waters prevail; and the mountains were covered. 21. And all flesh died that moved upon the earth, both of fowl, and of cattle, and of beast, and of every creeping thing that creepeth upon the earth, and every man: 22. All in whose nostrils was the breath of

life, of all that was in the dry land, died. 23. And every living substance was destroyed which was upon the face of the ground, both man, and cattle, and the creeping things, and the fowl of the heaven; and they were destroyed from the earth; and Noah only remained alive, and they were with him in the ark. 24. And the waters prevailed upon the earth an hundred and fifty days.

VIII. And God remembered Noah, and every living thing, and all the cattle that was with him in the ark; and God made a wind to pass over the earth; and the waters assuaged; 2. The fountains also of the deep and the windows of heaven were stopped, and the rain from heaven was restrained; 3. And the waters returned from off the earth continually: and after the end of the hundred and fifty days the waters were abated. 4. And the ark rested in the seventh month, on the seventeenth day of the month, upon the mountains of Ararat. 5. And the waters decreased continually until the tenth month: in the tenth month, on the first day of the month, were the tops of the mountains seen.

"6. And it came to pass, at the end of forty days, that Noah opened the window of the ark which he had made. 7. And he sent forth a raven, which went forth to and fro, until the waters were dried up from off

the earth. 8. Also he sent forth a dove from him, to see if the waters were abated from off the face of the ground. 9. But the dove found no rest for the sole of her foot, and she returned unto him into the ark, for the waters were on the face of the whole earth; then he put forth his hand, and took her, and pulled her in unto him into the ark. 10. And he stayed yet other seven days, and again he sent forth the dove out of the ark. 11. And the dove came in to him in the evening; and, lo, in her mouth was an olive leaf, pluckt off: so Noah knew that the waters were abated from off the earth. 12. And he stayed yet other seven days, and sent forth the dove, which returned not again unto him any more.

"13. And it came to pass, in the six hundreth and first year, in the first month, the first day of the month, the waters were dried up from off the earth: and Noah removed the covering of the ark, and looked, and behold, the face of the ground was dry. 14. And in the second month, on the seventh and twentieth day of the month, was the earth dried. 15. And God spake unto Noah, saying, 16. Go forth of the ark, thou, and thy wife, and thy sons, and thy sons' wives with thee. 17. Bring forth with thee every living thing that is with thee of all flesh, both of fowl, and of cattle, and of every creeping thing that creepeth upon the

earth; that they may breed abundantly in the earth, and be fruitful, and multiply upon the earth. 18. And Noah went forth, and his sons, and his wife, and his sons' wives with him: 9. Every beast, every creeping thing, and every fowl, and whatsoever creepeth upon the earth, after their kinds, went forth out of the ark.

"20. And Noah builded an altar unto the Lord; and took of every clean beast, and of every clean fowl, and offered burnt offerings on the altar. 21. And the Lord smelled a sweet savour: and the Lord said in his heart, I will not again curse the ground any more for man's sake; for the imagination of man's heart is evil from his youth: neither will I again smite any more every thing living, as I have done. 22. While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night, shall not cease.

IX. And God blessed Noah and his sons, and said unto them, Be fruitful, and multiply, and replenish the earth. 2. And the fear of you, and the dread of you, shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered. 3. Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things. 4. But flesh with

the life thereof, which is the blood thereof, shall ye not eat. 5. And surely your blood of your lives will I require; at the hand of every beast will I require it, and at the hand of man; at the hand of every man's brother will I require the life of man. 6. Who so sheddeth man's blood, by man shall his blood be shed: for in the image of God made he man. 7. And you, be ye fruitful, and multiply: bring forth abundantly in the earth, and multiply therein.

"8. And God spake unto Noah, and to his sons with him, saying, 9. And I, behold, I establish my covenant with you, and with your seed after you: 10. And with every living creature that is with you, of the fowl, of the cattle, and of every beast of the earth with you; from all that go out of the ark, to every beast of the earth: 11. And I will establish my covenant with you; neither shall all flesh be cut off any more by the waters of a flood; neither shall there any more be a flood to destroy the earth. 12. And God said, This is the token of the covenant which I make between me and you, and every living creature that is with you, for perpetual generations: 13. I do set my bow in the cloud, and it shall be for a token of a covenant between me and the earth. 14. And it shall come to pass, when I bring a cloud over the earth, that the bow shall be seen in the cloud: 15. And I will remem-

ber my covenant, which is between me and you, and every living creature of all flesh; and the waters shall no more become a flood to destroy all flesh. 16. And the bow shall be in the cloud; and I will look upon it, that I may remember the everlasting covenant between God and every living creature of all flesh that is upon the earth. 17. And God said unto Noah, This is the token of the covenant, which I have established between me and all flesh that is upon the earth."

CUNEIFORM ACCOUNT

1. Nuh-napishtim saith to him, even to Gilgamesh:
2. Let me unfold to thee, Gilgamesh, a secret story,
3. And the decree of the gods let me tell thee!
4. Shurippak, a city thou knowest,—
5. On the banks of the Euphrates it lieth;
6. That city was full of violence, and the gods within it—
1. To make a flood their heart urged them, even the mighty gods.
8. Their. father (i. e. adviser: Gen 45:8) was Anu,
9. Their counsellor the warrior Bel
10. Their throne-bearer Ninib,
11. Their champion, Innugi.

12. Nin-igi-azeg, even, Ia, had sat or lurked near them, and
13. Their talk (or purpose) he repeated to the reed-fence:
14. 'Reed-fence! House-wall, house-wall!
15. Reed-fence, listen! and house-wall give heed!
16. Man of Shurippak, son of Ubara-Tutu,
17. Pull down the house, and build a ship!
18. Leave goods, seek life!
19. Property forsake, and life preserve!
20. Cause seed of life of every sort to go up into the ship!
21. The ship which thou shalt build,
22. Exact be its dimensions,
23. Equal be its breadth and its length!
24. On the ocean launch it!
25. I understood, and said unto Ia my Lord:
26. 'The command, my lord, which thou spakest thus,
27. I honour, I will do it!
28. But what shall I answer the city, the people, and the elders?
29. Ia framed his mouth and spaketh,
30. He saith unto me, his slave:
31. Answer thus shalt thou make unto them:
32. "Bel hath rejected and hateth me, and

33. I may no longer dwell in your city, and
34. Toward Bel's ground I may no longer turn my face: but
35. I will go down to the ocean, and with Ia my lord will I dwell!
36. Upon you it will rain heavily . . ." (About twelve lines are broken or have entirely disappeared)
37. On the fifth day I laid down the frame of it;
38. At its bulwarks (?) its sides were 140 cubits high;
39. The border of its top equaled 140 cubits (i. e. every way).
40. I laid down its form, I figured (or fashioned) it;
41. I constructed it in six stories,
43. Dividing it into seven compartments;
44. Water-pegs inside it I drove it in (to stop leaks.)
45. I chose a mast (or rudder-pole), and supplied what was necessary;
46. Six sars of bitumen I poured over the outside.
47. Three sars of bitumen I poured over the inside.
48. While the basket-bearers were carrying three sars of oil abroad,
49. I reserved one sar of oil, which the libations (?) consumed;

50. Two sars of oil the shipmen stowed away.
51. For the men's food I slaughtered oxen;
52. I slew small cattle every day;
53. New wine, sesame wine, oil and grape wine,
53. The people I gave to drink, like the water of a river.
55. A feast I made, like New Year's Day . . . . (Five lines.)
56. With all that I possessed I freighted it;
57. With all that I had of silver I freighted it;
58. With all that I had of gold I freighted it;
59. With all that I had of seed of life of every sort I freighted it;
60. I put on board all my family and my clan;
61. Cattle of the field, wild beasts of the field, all the craftsmen, I put on board.
62. A time Samas appointed saying:—
63. 'When the Lord of Storm at eventide causes the heavens to rain heavily,
64. Enter into the ship, and shut thy door!'
65. That time came:
66. The Lord of Storm at eventide caused the heavens to rain heavily.

67. I dreaded the appearance of day;
68. I was afraid of beholding day;
69. I entered the ship and shut me my door.
70. For the steering of the ship, to Bezur-Bel, the shipman
71. The great vessel (deckhouse ?) I handed over, with its freight (or gear).
72. When the first light of dawn appeared,
73. There rose from the foundation of heaven a black cloud;
74. Rimmon in the heart of it thunders, and
75. Nebo and Merodach march before;
76. The Throne-bearers march o'er mountain and plain.
77. The mighty Dibbarra (or Girra) wrenches away the helm;
78. Ninib goes on, pouring out ruin.
79. The Anunnaki (earth-spirits) lifted torches;
80. With their sheen they lighten the world.
81. Rimmon's violence reacheth to heaven;
82. Whatever is bright he turneth into darkness.
83. .....
84. One day the southern blast .....
85. Hard it blew, and . . .

86. Like a battle-charge upon mankind rush the waters.
87. One no longer sees another;
88. No more men discerned in (described from) heaven.
89. The gods were dismayed at the flood, and
90. Sought refuge in ascending to the highest heaven (lit. the heaven of Anu):
91. The gods cowered like dogs; on the battlements (of heaven) they crouched.
92. Ishtar screams like a woman in travail,
93. The loud-voiced Lady of the gods exclaims:
94. 'Yon generation is turned again to clay!
95. As I in the assembly of the gods foretold the evil—
96. Like as I foretold in the assemby of the gods the evil:—
97. A tempest for the destruction of my people I foretold.
98. But I will give birth to my people (again), though
99. Like the fury of fishes they fill the sea!
100. The gods because of the Anunnaki wept with her;

101. The gods were downcast, they sate a-weeping;
102. Closed were their lips . . .
103. During six days and nights.
104. Wind, flood, storm, even more fiercely whelmed the land.
105. When the seventh day came, storm (and) flood ceased the battle,
106. Wherein they had contended like a host:
107. The sea lulled, the blast fell, the flood ceased.
108. I looked for the people (udma), with a cry of lamentation;
109. But all mankind had turned again to clay:
110. The tilled land was become like the waste.
111. I opened the window, and daylight fell upon my cheeks;
112. Crouching I sit (and) weep;
113. Over my cheeks course my tears.
114. I looked at the quarters (of heaven), the borders of the sea;
115. Toward the twelfth point rose the land.
116. To the country of Nizir the ship made way;
117. The mountain of the country of Nizir caught the ship, and suffered it not to stir.

118. One day, a second day, the mountain of Nizir, etc. (as before);
119. A third day, a fourth day, the mountain of Nizir, etc. (as before.)
120. A fifth, a sixth, the mountain of Nizir, etc. (as before.)
121. But, when the seventh day was come,
122. I brought out a dove, (and) let it go,
123. The dove went to and fro, but
124. Found no foothold (lit. standing place), and returned
125. Then I brought out a swallow (and) let it go.
126. The swallow went to and fro, but
127. Found no foothold, and returned.
128. Then I brought out a raven (and) let it go:
129. The raven went off, noticed the drying of the water, and
130. Feeding, wading, croaking, returned not.
131. Then I brought out (everything) to the four winds, offered victims,
132. Made an offering of incense on the mountain top;
133. Seven and seven tripods I set,
134. Into their bowels I poured calamus, cedar, fragrant herbs;
135. The gods snuffed the odour,
136. The gods snuffed the pleasant odour,
137. The gods like flies swarmed above the sacrificer.

138. But when Ishtar was come from afar,
39. She lifted up the Great Gems (?), which Anu had made to adorn her.
140. 'These gods' (she cried), 'by mine azure collar (lit. by the lapis lazuli of my neck), I will never forget!
141. These days will I bear in mind, and nevermore forget!
142. Let the gods go to the incense-offering!
143. (But) let Bel never go to the incense-offering!
144. Forasmuch as he took no counsel, but caused the flood,
145. And delivered my people to destruction.'
146. But when Bel was come from afar,
147. We saw the ship, and Bel waxed wrathful;
148. He was filled with rage at the gods, (and) the Igigi (i. e. the spirits of heaven):
149. 'Some soul' (he cried) 'hath escaped!
150. Let not a man survive the destruction!
151. Ninib frameth his mouth and speaketh—
152. He saith to the warrior Bel:
153. 'Who then but Ia doeth the thing?
154. Ia is versed in every wile.'
155. Ia frameth his mouth and speaketh—
156. He saith to the warrior Bel:

157. 'Thou, O sage of the gods, (and) warrior—
158. In nowise hast thou been well-counselled in causing a flood!
159. On the sinner lay his sin!
160. On the guilty lay his guilt!
161. (But) remit (somewhat)! let him not be cut off! forbear! let him not be swept away!
162. Instead of thy causing a flood,
163. Let the lion come and minish mankind!
164. Instead of thy causing a flood,
165. Let the Leopard come and minish mankind!
166. Instead of thy causing a flood,
167. Let famine break out and desolate the land.
168. Instead of thy causing a flood,
169. Let pestilence (lit. Girra; i. e. the god of plague) come and slay mankind!
170. I divulged not the decision of the mighty gods;
171. (Someone) caused Atranasis to see visions, and so he heard the decision of the gods.'
172. Thereupon he took counsel with himself (or made up his mind);
173. Bel came on board the ship,
174. Seized my hand and led me up (out of the ship),

175. Led up my wife (and) made her kneel beside me;
176. He turned us face to face, and standing between us blessed us, (saying):
177. 'Ere this, Nuh-napishtim and his wife shall be like us
178. But now Nuh-napishtim and his wife shall be like us gods!
179. Nuh-napishtim shall dwell far away from men) at the mouth of the rivers!'
180. Then they took me, and made me dwell far away, at the mouth of the rivers."

By comparison we note the following:

1. The Cuneiform account is polytheistic (lines 3-17); the Bible account is monotheistic.

2. The Cuneiform agrees with the Bible in making the Deluge a divine punishment for the sins of the people. (lines 5, 6.)

3. In all the traditions the ark is represented as floating up stream. The Bible represents the ark as finally resting in the mountains of Ararat.

4. The cuneiform account tells of the collecting of the animals for preservation, and in this agrees with the Bible, but differs from Genesis when it includes other persons beside the family of the builder. (lines 66-69.)

5. All accounts agree with Genesis in sending out birds; but thev differ in the details. (lines 121-130.)

6. All accounts agree in the building of an altar to offer sacrifices after leaving the ark. The cuneiform account, however, has the polytheistic coloring. (lines 132-143.)

7. Both accounts agree in stating that the human race shall no more be destroyed by a flood. (Gen. 9:11; lines ——.)

CHAPTER V.

The Decalogue—In Natural History.

I.	IV.
	V.
	VI.
II.	VII.
	VIII.
	IX.
III.	X.

The First Commandment.

"I am the Lord thy God. Thou shalt have no other gods before me, etc."

The Second Commandment.

"Thou shalt not take the name of the Lord thy God in vain; for the Lord will not hold him guiltless that taketh His name in vain."

The Third Commandment.

"Remember the Sabbath day to keep it holy, etc."

The Fourth Commandment.

"Honor thy father and thy mother, that thy days may be long upon the land which the Lord thy God giveth thee."

The Fifth Commandment.

"Thou shalt not kill."

The Sixth Commandment.

"Thou shalt not commit adultery."

The Seventh Commandment.

"Thou shalt not steal."

The Eighth Commandment.

"Thou shalt not bear false witness against thy neighbor."

The Ninth Commandment.

"Thou shalt not covet thy neighbor's house."

The Tenth Commandment.

"Thou shalt not covet thy neighbor's wife, nor his man-servant, nor his maid-servant, nor his ox, nor his ass, nor anything that is thy neighbor's."

On the surface of his book, entitled

"Natural Law In the Spiritual World," Sir Henry Drummond erred in asserting that "the laws of the natural and the spiritual realms are identical." This is not true even of laws which obtain within different parts of the natural world. The laws of chemistry and physics, for example, describe the modes of action of energy under different conditions; and a law of description of the one process will not answer for the other. But the truth which he saw and sought to lead others to see throughout his entire scientific and religious work was the reality of the underlying spiritual unity of the world. Mr. Drummond said: "I am well aware that many see no such thread binding Nature and Grace. Others not only see no thread, but see no use in one. I can only say that for me there is no alternative but to see it. Now a thing that we cannot help seeing must either be really there, or one's vision must have some constitutional defect." In these ten commandments, then, we desire the reader to see, not arbitrary laws, but certain fundamental laws or unifying principles constituting the background of Natural History and making of all the animal kingdom one glorious revelation.

The first three commandments sum up our duty to God, and have a purely spiritual bearing. The last seven refer to our duty to our fellow-men and have a physical bear-

ing. There is nothing in the animal world to suggest the recognition of the Supreme Being, but it is intensely interesting to observe that, for the animals, man is a supreme being, as God intended in Genesis 1:26—supreme, I mean, in the animal kingdom. That man should have dominion over the beasts of the field and the fowls of the air, is a fact not only written on the sacred page of Genesis, but manifest to every naturalist who studies the world's fauna. Instinctively the lower orders of creation show a kind of reverence and awe for, obedience to, and fear and trust in man—a faint glimmering of the beginning of mental attributes.

Remarkable indeed that a dog, a horse, an elephant, should come and go at the bidding of a man. But more remarkable still that the beasts of the forest should so trust and confide in him that in times of great peril they will go to him for protection against a superior foe. Dr. G. B. Grinnell relates that, upon a certain occasion, when out shooting with General Custer's party near the Black Hills, in 1874, they saw a falcon in pursuit of a wild pigeon. When the pigeon saw it could not escape its winged foe, it took refuge among the men, resting on one of the saddles. Another instance is given by George F. Guernsey, who says that some years ago a neighbor and his wife,

standing in their cattle yard, saw a pack of five coyotes chasing a fox. The fox was nearly worn out when it ran right up to the woman and crouched for protection at her feet.

Earnest Thompson Seton tells the following: "In October of 1898, I was riding across the Bighorn Basin (Wyoming) with Mrs. Seton and A. A. Anderson, when we noticed near the horizon some bright white specks. They were moving about, now disappearing and now re-appearing. Then two of them seemed to dart erratically over the plain, keeping always just so far apart. Soon these left the others and careered about like twin meteors, this way and that, then our way; at first in changing line, but later directly toward us. Their wonderful speed soon ate up the intervening mile or two and we now saw clearly that they were antelopes, one in pursuit of the other. High over their heads a golden eagle was sailing. On they came; the half-mile shrank to a couple of hundred yards, and we saw that they were bucks, the hinder one larger, dashing straight toward us still. As they yet neared, we could see the smaller one making desperate efforts to avoid the savage lunges of the big one's horns, and barely maintaining the scant six feet that were between him and his foe. We reined up to watch, for now it was clear that the smaller

buck had been defeated in battle with an exceptionally vicious rival and was trying to save his life by flight. But his heaving flanks and gasping, dribbling mouth showed that he could not hold out much longer. Straight on he came toward us whom he fears more than all others. He was between two deaths (it would seem); which should he choose, he seemed not to hesitate—the two hundred yards shrank to one hundred, the hundred to fifty—then the pursuer slacked his speed. It would be folly to come farther. But the fugitive kept on until he dashed right in among our startled horses. The eagle alighted on a rock two hundred yards away. The victorious buck veered off, shaking his sharp, black horns and circling at a safe distance around our cavalcade to intercept his victim when he should come out on the other side. But the victim did not come out. He felt he was saved and he stayed with us. The other buck, seeing that he was balked, gave up the attempt, and turning back, sailed across the plain until he became again a white speck that joined the other specks, no doubt the does that had caused the duel. The vanquished buck beside us stood panting, with his tongue out and showing every sign of dire distress. It would have been easy to lasso him, but none of us had any desire to do him harm. In a very short time he regained

his wind, and having seen his foe away at a safe distance, he left our company to go off in the opposite direction. The eagle realized now that he was mistaken in supposing that something was to be killed and that there would be pickings for him. He rose in haste and soared to a safe distance."

These illustrations might be multiplied. While man is the only being that has a soul made in the image and likeness of God, and hence is the only being that can keep the first table of the decalogue (according to the spirit), yet, deeply hidden though it be, there is a manifest instinct which prompts the animal in great extremity of peril, to seek out a recognized superior being, man, to call upon him by coming to him and expecting to find mercy. This, after all, to a considerable degree, is contained in the germ principles of the first three commandments though it is entirely a blind groping.

The physical phase of the third commandment may be illustrated from every sphere of nature. One or two must suffice to show the need of a day of rest in seven. Page after page of testimony is at hand from eminent physicians to show, from a purely economical viewpoint, the importance of this command. Mechanics tell us that even locomotives and car-wheels need rest-days to give the best results. At the Dublin meeting of the British Association for the

Advancement of Science, on the fourth of September, 1857, Mr. Bianconi, to whom, before the days of electricians, Ireland was greatly indebted for establishing and maintaining its system of public horse-cars, presented in a scientific paper the results of his extensive experiences. "I found," he said, "that I could work a horse with more advantage eight hours a day for six days, than six hours a day for seven days; and therefore I discovered that by not working on Sunday I made a saving of twelve per cent." I remember reading somewhere of two men who were engaged in a similar enterprise, each man employing the same number of horses. (If I recall correctly, each man owned three hundred horses.) One man required that his horses work seven days a week; the other, only six days a week. The man whose horses worked six days did more work than he whose horses worked seven. To this should be added the fact that the horses of the Sunday observer lived much longer than those of his competitor.

The British Parliament, in 1832, appointed a committee, with Sir Robert Peel as chairman, to investigate these two facts: viz., whether men who labor six days in a week are healthier and live longer than those who labor seven; and, secondly, whether they will do more and in a better manner. Experiment was made on two thousand men

through a series of years, who were required to work seven days in the week. To render them contented, each man received double pay for his Sunday work. Two evils followed—physical exhaustion and spiritual demoralization.

The fourth commandment emphasizes due regard for parents and superiors. It is the very foundation-stone of all government, because the family is the social unit. The animals obey it unconsciously. Whenever they do not, their days are not "long on the earth."

E. T. Seton says: "A hen sets out with her chicks a-foraging; one loiters, does not hasten up at her cluck-cluck of invitation and command; consequently he gets lost and dies. Another neglects to run to the spot when she calls in the established way that she has found good food. He is not so well nourished as the others; he becomes a weakling and in the first hard pinch he is the one that fails—he dies. Again she may call out hawk! and run for shelter; the obedient ones run with her, and are safe; the disobedient loiter—and die. They pay the penalty, their days are short in the land."

F. J. Thompson, Superintendent of Cincinnati Zoo, tells of a black bear in the garden that produced a family of two cubs in January, 1879. When they were seventy-one days old, one of them left the den for

the first time, and followed the mother in her quest for food. This, in a wild state, would have been a fatal mistake for the young one, "As soon as the mother found it out," he writes, "she immediately drove it gently back; and, on the second attempt, she cuffed it soundly, which put a stop to its wandering propensity."

In 1878 two of my cousins in company with two fellow-workmen on their way home from the "Pine Swamp," leading over the Pocono Mountain, overtook three such disobedient cubs and captured them and carried them home to the little village of Appenzell, at the foot of the mountain. Several times I have overtaken a pheasant in the woods, with a brood of young ones. Quick as a flash, the little ones vanished out of sight. They obeyed the mother who told them to hide under the leaves, and their lives were spared to her. This law of obedience is vital. Its violation means death to the individual, and if persisted in, death to the race.

The principle of the fifth commandment is the preservation of the species, and is against its destruction. And likewise we find that there is a deep-rooted instinct against murder, in this sense, in most of the animals. They recognize their own kind and instinct tells them: "Thou shalt not kill" them.

Reared at the foot of the Pocono Mountain, where rattle snakes were more numerous than we preferred, I saw their new-born babies strike quickly at any other species that came near, but never at their own. Minks, like kittens, are born blind. My uncle told me that on one occasion he found several of these young ones in their snug home, took them with him and allowed them to be suckled by a mother cat. When well fed he said that they instantly tried to take her life. Though creatures so blood-thirsty, they never would have attacked their own mother. Animals not unfrequently fight, usually on account of mates, but in nearly all cases the fight has ended when one yields. Many times you have seen a dog groveling on the ground to disarm his superior in the fray. When two cats fight, the conquerer is satisfied when his antagonist runs away; he will not follow him a hundred feet. But had the fight been between dog and cat, or between cat and rat, the victor would have followed with avowed intent to kill.

What makes the difference? All will admit that the conclusion was not arrived at by reason. You say it was instinct. You might say truthfully that it is because of an unconscious recognition of an unwritten law or principle against killing one's own kind.

There are exceptions to this rule, but so there are exceptions among men. There are cannibals among the most uncivilized of men; and some higher ones that have been demoralized by captivity. But to the highest instinct cannibalism is repellent. The records tell us that it was actual starvation that finally induced Nansen's dogs to eat the flesh of their comrades, even though it was offered to them in a disguised form. Experience has often told trappers that it is useless to bate a trap for the higher animals by using the flesh of their own species. And this law, the preservation of their kind, is so fully established, says Thompson-Seton, that "not only will they abstain from killing their own kind, but they will actually rally to save one whose life is in jeopardy."

We turn now to the sixth commandment, or the fundamental of purity. Sometimes it is said that all the noted characters of the Old Testament were polygamists. This, however, is a statement made by those who are too ignorant to understand, or too indolent to read. Read the roll of monogamous honor. From Adam to Noah but one case of polygamy, and that case issued in murder. Adam and all the antediluvian patriarchs, Abraham and Isaac, Joseph and Moses, Aaron and Joshua, all the prophets and all the apostles, were advocates and supporters of monogamy and forbade the intermarriage

of near relatives. Here again nature is a great teacher, older than revelation. Even nature says with Paul, "Let every man have his own wife." The equality in the numerical proportion of the sexes speaks loudly. I have before me statistics showing male and female population in the decades from 1850 to the present time. Its findings are remarkable, though they would require too much space to be given here in detail. The following fact, however, is so striking that I must not omit it. In 1860 there was in this country an excess of 727,087 males, and in England an excess of 700,000 females, so that in these two great countries there was almost an equilibrium of the sexes numerically.

But what say the animals? The evil called "inbreeding" or the mating of near kin is so well established, and so well known to anyone who has spent some time on the farm, that I will not dwell upon it here. But as regards polygamy and monogamy "let there be light." In his "Antelope and Deer of America," Mr. Caton observes the following: Referring to Sulton, a distinguished character among the Wapiti Deer tribe, he says: "At first his progeny were reasonably numerous, but during the last few years of his life they gradually diminished from a dozen to a single fawn in 1875, though with about twenty-five females,

more than half of which had previously produced fawns." He was replaced by a younger male and "the result was that I had twelve fawns the next season, including one pair of twins."

The Wapiti, the most polygamous of the deer in America, are the first to disappear, while "the survival of the fittest" belongs to the common white-tailed, the least polygamous. "One of the common difficulties besetting the growing of blue foxes for their fur, on the islands of the Bering Sea, is what has been called the obstinate and deplorable monogamy of those animals. The breeders are working hard to break down this high moral sentiment and produce a blue fox that does not object to polygamy."

The wild goose is a most exemplary bird. The tame goose, like the dog, has been spoiled. There is, however, one domestic bird that maintains its honorable wild tradition in spite of all that sinful man can do; this is the pigeon. "The breeder knows that the young in a given nest are unquestionably the offspring of their alleged parents." (E. T. S.)

It is not surprising then that Gadow, the distinguished ornithologist, should call the pigeons the birds of the future. By this he means to say that when all other species have paid the penalty of polygamy, the pigeons will possess the earth because they

obey the command, "Thou shalt not commit adultery."

Seton says that the most successful wild quadrupeds in America today are the gray wolves. They are strict monogamists and they defy all attempts to exterminate them. True, nearly every kind of abominable vice known among men and forbidden by the Mosaic law, has been noted among animals. These are the exceptions, not the rule among wild animals. Those who have lived among "the birds and the beasts" agree that most wild animals instinctively obey the Mosaic law and are rewarded; and that where the marriage of near kin is avoided and monogamy practiced, there will result the survival of the fittest.

Lazarus was no more virtuous than Abraham. The sin of violating the seventh commandment consists in "bringing into our possession by unfair dealings and fraudulent means" that which belongs to our neighbor.

Seton says the animal law is this: "The producer owns the product; unproduced property belongs to the first who discovers and possesses it." I believe this would hold among men in a court of justice and in a school of theology.

Property among animals consists of food, home, wives, and playground. Ownership is indicated in two ways; one by actual possession, the other by visible marks or smell

marks. Seton says that many animals, as rabbit and bears, rub their bodies against trees in their range, to let other animals know that this place is already occupied. Some creatures, as the weasels, have glands that secrete an odor which they use for an ownership mark. The odor varies with each individual and thus answers admirably. I have seen wolves, foxes and dogs, marking their property in this way. I have also seen foxes and wolves store away food in the earth; after it was buried, they defiled the place in a characteristic way, thereby putting their mark. It is proverbial that it is unwise to disturb a bone buried by a dog. It is his property and he intends to protect it. You have no doubt observed at some time a small dog guarding its property successfully against a large Newfoundland intruder, only on the grounds that the large dog instinctively yields to the moral law, "right of possession." The little dog felt himself to be in the right, the big dog that he was in the wrong.

On the Pocono Mountain in Eastern Pennsylvania, I have seen the bear's markings, where he tore the bark of trees with claw or teeth. This is the mark for the other bear who sees it from afar. In the summer of 1906, a college mate and I drove to the top of this same mountain for a day's outing. Our wives were with us to enjoy the

day. For the comfort of the horse, and to get nearer to nature's heart, my friend and I walked up the mountain. As we walked, I enlarged on the idea I had often heard of, but had never seen exemplified; viz.., that a horse very much feared a bear and by scent recognized the boundaries of his marked-off territory.

It was a delightful day on the mountain. On our return, about half way down the mountain, the horse raised his head and ears in a manner denoting something unusual. The men sat in front. We were both silent for a minute as if overtaken by a spell, all the while half expecting a bear, when suddenly about a hundred yards in front of us we saw Bruin cross the road. It required some urging to have the horse venture on forbidden ground.

Dr. F. W. True, writing of the blue foxes on the islands of the Bering Sea, says that they will follow a man, in the hope of being fed, "to the boundary of his domain; for each fox, like his neighbor, the bull seal, seems to have a definite territory which he regards as his own, and upon which he resents intrusion." Animals recognize their own food, home, territory and wives, and they will defend them. "Any cock will fight on his own dung-hill." "He is a poor thing that won't fight for his own." These familiar sayings illustrate this law. The

law of ownership is recognized by possessor and non-possessor, and those who depend on stealing will suffer the penalty, if not in the individual, then in their species.

The eighth commandment says: "Thou shalt not bear false witness, etc." Exod. 20:16. "Thou shalt not raise a false report." Exod. 23:1. Untruthfulness is an abomination unto the Lord. It is even so to animals. Note the significant illustration in the following poem, which is also verified by other noted naturalists than the author of the verse, which was written by E. L. Hickey, and appeared in "Leisure Hour," volume 1892-3:

"It was many and many a league away
from the place where now we are,
And many a year ago it happ'ed in the land
of the great White Czar.

It was morn—I remember how cold it felt
—out under a low pale sky,
When we moored our boat on the river
bank, my companion Leigh and I.

"And the plunge in the water unwarmed of
the sun was less for desire than pluck;
And we hurried on our clothes again and
longed for our breakfast luck;
When all of a sudden he clutched my arm
and pointed across, and there
We stood up side by side and watched, and
as mute as the dead we were.

"We saw the gray-wolf's fatal spring,
And we saw the death of the deer;
And the gray-wolf left the body alone,
And swift as the feet of fear
His feet sped over the brow of the hill,
And we lost the sight of him
Who had left the dead deer there on the
ground uneaten, body or limb.

"So when he vanished out of our sight
we rowed our boat across,
And lifted the carcass and rowed again to
the other side.
The loss for you, good Master Wolf, much
more than the gain for us will be.
'Twere half a pity to spoil your sport, except
that we fain would see
The reason why with hunger unstanched,
you have left your quarry behind;
Red-toothed, red mawed, foregone your
meal; Sir Wolf, we'll know your
mind.

"Hungry and cold we waited and watched,
to see him return on his track;
At last we spied him atop of the hill, the
same gray-wolf come back;
No longer alone, but a leader of wolves,
the head of a gruesome pack.

"He went right up to the very place where
the dead deer's body had lain,

And he sniffed and looked for the prey of
his claws, the beast that himself had
slain;
The deer at our feet and the river between
and the searching all in vain.
He threw up his muzzle and slunk his tail
and whined so pitifully,
And the whole pack howled and fell on
him—we hardly could bear to see.
Breaker of civic law, or pact, or whatever
they deemed of him,
He knew his fate, and he met his fate, for
they tore him limb from limb.

"I tell you we felt as we ne'er have felt
since ever our days began—
Less like men that had cozened a brute than
like men that had murdered a man."

To covet is to desire the "forbidden fruit." Covetousness is an eager and intense desire for that which is not lawful for a man to have. This was the sin of Achan: "When I saw among the spoils a goodly Babylonish garment, and two hundred shekels of silver and a wedge of gold of fifty shekels, then I coveted them." A man may desire a house, but not the one that belongs to another, without paying for it; a man may desire a wife, but not another's; he may desire a horse or a trusty servant, but not to the disadvantage of another; an ox, an ass, a field,

but not to the injury of its owner. You should not be surprised to find that the animals resent the idea that another should covet and take possession of the home they have built.

Under the eaves of my father's barn a colony of swallows had been established, dating back longer than I can remember. They went to the warmer country in the autumn and returned in early spring. I would think it was in the spring of 1876, "Centennial Year," that a pair of blue-birds fixed their covetous eyes upon one of the nests and took possession of it. First the owners tried to eject the invaders; then the whole colony of swallows joined in the attempt, but without success. The blue-bird inside was fortified behind a hard mud wall and would neither yield to force nor to the moral right of ownership. Apparently the swallows abandoned the attempt. (But preceding the storm there is also a calm.) Behold! they all came in a body, each with a pellet of mud, and walled up the entrance to the nest. The blue-bird in possession starved to death, and my brother and I found it there some days later.

This fact is verified by H. Dallas through E. T. Seton in a similar account. This comes very near being parallel to the fate of Achan whom all Israel stoned to death with stones. In both cases death was the penalty

of covetousness. Naturalists who are at home with "the beasts and the birds" could multiply these illustrations manifold; but I believe these will suffice to illustrate the premise. Deep down in their inmost life in some way God has written fundamental laws, if not on "the tablets of their hearts," at least in the very fabric of their being; and, as among men, the rule is that they assent, while the penalty of transgression is death. If this does not appear directly, it is yet "visiting the iniquity of the fathers upon the children unto the third and fourth generation," and showing mercy unto thousands that obey his commandments.

CHAPTER VI.

Psalms in Nature.

Above the couch of David, according to tradition, there hung a harp. The midnight breeze, as it rippled over the strings, made such music that the poet-king was constrained to rise from his bed; and, till rosy-fingered aurora was seen in the eastern sky, he wedded words to the music. Whether this tradition be true or not, it reminds us of our kinship to Nature's Book, differentiating for us the clear notes of the Psalms of Life.

The composer writes music by combining sounds of different pitch—it may be a lullaby, a march, a waltz, or an oratorio. In a single composition a musician can combine every sentiment of which the human being is capable, from the grave to the gay, or from the despairing to the triumphant. Music is thus largely descriptive. Composition that consecutively describes such conflicting emotional conditions, must necessarily be complex. Aside from this, these rapid changes would be nothing but discord; but our musician, by rapid modulations, can

change, without jar upon your ear, a minor into a major, or a major into a minor, and in a twinkling convert a wail of despair into a poem of hope! The musician in truth can combine and can correlate and bring into mutual relations, things most dissimilar, unrelated, and seemingly opposed—harmony out of apparent chaos. The musician in a sense can make a carol out of the universe, and correlate not only the things of earth, but bind planet to star and star to constellation.

Through the use of common chords, the musician, by bringing into mutual relationship things unrelated, separate and apart from each other, unifies in a manner all the things of his kingdom, and thus he is a prince among the synthesists. To do this requires oftentimes that which is known as close harmony; but to the refined musical ear, "the closer the harmony, the more exquisite the delight."

A child with his forefinger can pick out note by note, in a limited way, a simple melodious exercise. The musician by the practical combination of chords, with both hands and by the use of many octaves in his instrument, can elaborate his harmony and make tones and progressions unthought of by the child. The history of harmony is the history of ever-increasing richness of combinations of common chords. This was

not done in a day. It required centuries of labor and thought.

There are in music, as in other arts, infinite possibilities of arrangement of harmonious material, and infinite combinations of these related parts—all of which are pleasing. Thus there can be no end to harmony in composition. The best harmony no doubt is found in the large orchestra, where there are scores of instruments, all of which have differing sounds, differing notes, and differing chords. Yet all this variety when in accord and harmony wonderfully enrich the melody. But we must not forget that all modulations require a return to the keynote before the end of the musical composition (this is true in Nature and in Grace), but in the meantime the player may have brought into harmonious use every note of his instrument. To compose harmony among the present warring nations and among individuals, the kings and priests are no less restricted than the musicians; for to compose harmonies in the moral world the author joins, correlates, combines and brings into mutual relationship those who were apart and seemingly unrelated. The keynote of a neighbor may be very foreign to his own. But, happily, there are such things as modulations, progressions, and gradations. To compass the end may require close harmony, yet it is

harmony, perhaps all the more beautiful.

In the harmonious material that lies between yourself and the world, and between God and the world, there is infinite arrangement and re-arrangement. In the moral world, also, there can thus be no end to harmonious composition. God's thought for the world is that it may be a mighty orchestra, antiphonal to the orchestra of Heaven—"Blessed are the peacemakers."

The coming of Christ means peace and harmony and oneness in the world. I in you, you in me, and God for us all and in us all! In this composition no man can live to himself or die by himself. No matter how far away and though lost he may be, you can reach Him—by modulations.

We all need to get a finer sense of quality. The quality of the violin, cornet and trombone—they all differ widely; but instead of making orchestral discords, they wonderfully enrich the melody.

Pythagoras said that the seven planets were the seven notes of the octave, and that all the heavenly bodies were a part of an universal orchestra; not one, thought he, "but that in its motion like an angel song."

In the highest sense I do not doubt the truth of this, nor do I doubt the universal brotherhood to be—just as soon as the nations and the individuals at war correlate themselves, the one with the other and with

the angels and with God! This can be done through Jesus Christ. He is the keynote of the universe. In Him alone can all things be one—one in harmony and peace, and one in eternal purpose. This is the Psalm of Life.

Many treatises have been written on the Beauties of Nature, and still we inquire, what is the true interpretation of the Beautiful in Nature? Darwin has told us that the gaudy colored petal has a utilitarian motive. Its intent is to lure the insect, which, in gathering its honey, will at the same time serve as slave to carry pollen from plant to plant, and thus help to perpetuate the species.

Then follows another who says that "there is an order in the color scheme independent of its use in life—an order which is definite and predetermined in the very constitution of matter" (nature), which means essentially that the beauty dates back to its origin.

Now this beauty, according to its kind, we see everywhere in nature. We see it in the fauna and in the flora. We see it through the microscope, the telescope, and the spectroscope. We see it wherever we open our eyes to look. We see it in the starry night and in the glare of the noon-day sun. And of all this beauty, as regards order, symmetry, harmony, adaptation, "Day

unto day uttereth speech, and night unto night showeth knowledge," and in the language of this order and adaptation is gone out "through all the earth and their words to the end of the world."

Many times, no doubt, have most of us, when alone in the garden, the field, or the wood, meditated on that strange kinship between us and the outer world. The art in nature suggests to us thoughts which are not foreign to our experiences in life—thoughts of joy and gladness, pleasure or pain—thoughts which are all real to us, and hence they must be real in themselves. And if they are real to us who are not artists, how intensely must they be "lived over" in the heart and mind of the true poet! And when we penetrate the deeper meaning of this kinship between nature and the individual mind and the mind of the whole human race, how nature is fitted to mind and mind fitted to nature; if we vividly feel the reality of this adaptation, we first pause and wonder at self, and then at that which is outside of self. We pause and wonder, and are seized with a conviction deeper than the findings of a syllogistic argument. We do not ask at this point for major and minor premise. But, with a conviction deeper still, we answer: "One thing I know, that whereas I was blind, now I see." The fact of these two entities, so answering the one to the

other—such beauty and order without answering to beauty and order within—strangely holding communion, is all from reason for reason. It is the revelation of reason to reason. "One thing I know," and I may know it as truly as the poet or the painter knows it, that this kinship in self and nature is rooted and must be rooted in the one central and universal intellect, from whence emanated the Divine idea which is revealed to us alike in the Psalms of David and the Book of Nature.

On the occasion of something absurd or unusual, we have heard men of more than ordinary intelligence dismiss it by saying: "Oh, that is poetry!" And there are a goodly number of sensible people who share this view—people to whom poetry is only another name for what is fantastic and untrue. If poetry is not true, if it has no real foundation in the very nature of things, if genuine poetry is not as true a form of thinking as any other, and is not, indeed, one of the highest forms of human thought, then the sooner we abandon it, the better. But I believe, as Wordsworth says, that it is "the breath and finer spirit of all knowledge;" "immortal as the heart of man."

Now the raw material is essentially the same for the man of science and the man of art. The analytic structure, however, the poet leaves to physics and metaphysics to

settle between themselves. But, besides the various aspects of nature which physical science explains in subduing apparent confusion into unity, law, and order—over and above those laws, there are other sides or aspects of Nature which come to us through other than scientific avenues and bring home to us new and sublimer truths and raise us to nobler contemplations. When the harp-strings over David's couch caused him to "sing and make melody in his heart unto the Lord," the emotions evoked were as true and as rational as the law of gravitation or the law of the atomic theory. The soul witnesses to beauty as truly as the eye to light. Jacobi calls it "the spiritual eye for spiritual objects."

Such realities are there in the world of art—such real ideas and ideals that they served as the guiding stars to lead the heathen poets of Greece in their admiration and adoration of the beautiful to the very borders of the land of promise. I do not forget the danger emphasizing art to such a degree (as in the case of the Greeks also) that religion and art become synonymous terms. I do not forget that Plato saw the danger in the witchery of form and color and music. But I am just as truly aware that, in spite of this danger, it was their intense admiration of the beautiful that lifted the

Greeks to a higher plane of thinking than all the rest of the heathen world.

The Greek had strong human feelings and sympathies. He projected himself on nature—humanized the clouds, forests, rivers and seas. With the Greek it was not merely power, but human power; not only beauty, but human beauty; not only life, but human life which was the subject of his profound veneration. In his conception of God, his effort was to realize a human being who was altogether lovely. True, they erected in Athens an altar to the Unknown God; but when that God should be revealed, their fond hope was that it should be the Divine under human limitations. They looked for humanity in its glory—they asked for the Son of Man. Here, then, it is apparent that the Book of Nature in its poetic form led those heathen (as it were almost a Divine inspiration) to the very gate called Beautiful; and had they, as the wise men of the east, consulted the prophets, they might have entered the Temple of God.

There is another truth in the Book of Grace that receives wonderful confirmation and verification from the Beauties of Nature. I refer to the fact of spirit. Apart from the plain Word itself, there is no source from which we receive such overwhelming evidence as here. Shakespeare

makes Hamlet say: "There are more things in heaven and earth, Horatio, than are dreamed of in your philosophy." Not that I would charge it against the author of Evolution (for I do not hold him responsible), yet it is a fact that, since his day, there has been a decided materialistic tendency in science—a tendency to deny the existence of anything but that which we can see, hear, taste, touch and smell. To such a degree has this skepticism been carried that its advocates, who decried dogma in religion, became the worst of dogmaticists. "Now the natural man receiveth not the things of the Spirit of God; for they are foolishness unto him; neither can he know them for they are spiritually discerned."

It is clearly a law in nature that, when a man is totally absorbed in that which is material, he loses all hold upon the spiritual, and becomes like the Queen of Sheba, who so riveted her thoughts on the material splendors of King Solomon's home that when she had seen "the meat of his table and the sitting of his servants and the attendance of his ministers and their apparel and his cupbearers and his ascent by which he went up unto the house of the Lord, there was no more spirit in her." There is in nature just as much or as little as the soul of each person can see in her. And in order to see other than that which is material, the

soul must be trained and moved in the things of the spirit. If anyone is so exclusively the man of science that he never gets beyond analyzing, comparing and reasoning on the phenomena that he sees, then he will look without emotion on the grandest truths of nature. Then he will see in nature nothing but a subject for investigation and analysis; no beauty, no art, no spirit.

During the early part of the month of June, in the summer of 1912, in company with my wife and three friends, I toured the State of Pennsylvania, from west to east, in an automobile. The weather was most delightful. Not only was it in the month of roses, but the month when many of the wild flowers were at their best. Especially on the Allegheny Mountains the shad-bush, hawthorn, and dogwood were still in bloom, and the laurel and the rhododendron had reached the zenith of their glory. But the mountaintop was delightful for other reasons also—it gave one a larger outlook on life. As we ascended the mountain from the lowlands, our horizon was constantly enlarged. From the summit we were delighted to look out upon the fertile fields in the valleys below, as far as the eye could reach. What thrill of joy one experiences on the uplands! It is an experience we should enjoy many times both literally and metaphorically. The descent of the eastern

slope brought us to the beautiful village of Bellefont nestling at the foot of the mountain. Here, in conversation with a fairly intellectual gentleman who had lived there all his life, I dwelt at some length on the fact that we who live in Pennsylvania need not go to the far west for mountain scenery, inasmuch as we have it at our door; although, I added, "there are many who have lived in this state all their lives who never knew of the uplands." (They have spent all their lives in the lowlands and quagmires—down in the valley of despair.) To my surprise, this somewhat well-read man, who had lived at the very foot of the grandest scenery east of the Rocky Mountains, told me he had never visited the uplands—the mountain top. Truly, "where there is no vision the people perish." Hemmed in on sides by mountains, their vision is limited to small things; down in the lowlands they do perish for want of a vision. Their motto should be Excelsior; higher, ever higher, until they reach the uplands from the summit of which they may look out upon the grandeur of a larger horizon; where the poetry of nature may inspire them with a brighter view of life and a nobler sphere of living.

I am inclined to believe that there are men of science and men of the world who so fix their every thought on dollars,

"house and land, and other property," or limit their vision to the four walls of the laboratory, thinking of vortex-rings, atoms, and of, I had almost said molly-coddles for molecules, that they can scarcely expect anything else, according to the teachings of the same laws they so fondly desire to emphasize, than that soon there will be no more spirit in them. What they need is to get out of the haze and mist of the laboratory, out of the damps and quagmires of the lowlands, into the uplands of the mountain, and breathe the purer atmosphere, and see with clearer vision a broader horizon, where they will be seized with a conviction that there is an idea in every leaf, and song of bird, and babbling brook, and setting sun. Their spirit will revive and they will live. They need to pray: "Lead me to the rock that is higher than I."

Inasmuch as the outer worlds are so constructed that they answer to the inner, so that when mere qualities (not material) such as length and breadth, solitude and gloom, sunshine and shadow, affect the soul in certain well known ways and awaken in us emotions of peace and joy, of sadness or solemnity, we naturally ask ourselves the question, "What is there of kinship in the outer world that awakened these emotions?" It is an inevitable question from anyone who has been thus moved. He realizes that this

emotion was not the outgrowth of mere chance. When the spirit within was so moved, by an entity intensely real, though it came through something material, it was more than physical; it was spiritual. Like produced like—spirit agreed with our spirit. Evidently this could not be otherwise, for it carried the perceptive faculty quite beyond the material appearance till it found self in communion with a kinship to its own spirit. The beauty that came to us through the senses, we felt belonged more especially to the same order as that which addresses the moral aspect to the heart and conscience. It must have been the Great Spirit behind the veil. It is the only way to account for the intense love which "these sights and these sounds" of Nature have awakened in the purest and best of men; and the more as they advanced in age and calmness of soul.

But if nature is to foreshadow something higher than itself, man must come to it with the thought of God already in his heart. Even water will not rise higher than its source. And the water of life which alone satisfies, comes from the reservoirs on the hills of God. So a man must not expect to get a religion out of the mere sight of nature, either from its manifold design or from the beauty it manifests as telling of character. If it shall be for him an element of reconciliation and helpfulness in so many

ways as are intended to lead the soul upwards, he will approach it with his moral convictions clear and firm and a faith connecting him as directly with his God.

Here it is, then, that we find the answer to account for the different degrees of poetry. Poetry has three objects with varying degrees enter into it—man, nature and God. The presence of the last pervades all great poetry, whether it bows the knee in reverence directly before Him, or whether the presence be only indirectly felt, as the centripetal force toward which all deep thoughts about man and nature ultimately tend. The deeper tones and the sublimer beauty hidden in nature will be inaudible and invisible unless the eye and the ear penetrate the deep things of the heart. And it is the work of the artist to set it forth for others in its breathing life.

For the soul, however, to take in all that nature contains, there must be present not only the observing eye, but also the feeling heart alive to all that is most real in life, its source and destiny. And in every "study" there must be the upward look toward the uncreated. As man looks out upon the face of the earth, sky and sea, and is moved by the thought whence their origin and whither their destiny, the answer must unconsciously enter in and give color and character to all he does. It can hardly be

otherwise than that a man's inner thoughts about these answers will find their way to some expression, whether he be painter, musician, sculptor, or poet. In fact, so closely and deeply interwoven are all the parts of the universe that only as a man rises to a full conception of it and of its manifold harmonies, can he set forth for others that central harmony which sets it right with man and God. This Homer and Lucretius and many other Greek and Roman poets did to a remarkable degree. This many Christian poets did to a still greater degree.

But nowhere do we find this central harmony in all its fulness and effulgence as we find it in the Hebrew writings; in the Psalms of David, and the Book of Job. These Hebrew poets reflect their faith in the unity of God and His immediate presence in all created things. By such inspiration, Job was enabled to say, long before science said it, that the earth was globular and that it hung in space. By the Hebrew poets the world is described not in detail, but as a whole in extension and movements; and if the individual object is dwelt upon, it is as a visible witness of the Infinite One. Here you do not find nature spoken of as an independent or self-subsisting power, but as the outer garment, the veil of an unseen presence. Search through all the literature

of Greece and Rome in the palmiest days, and you will not find anything to compare with the 104th Psalm in the setting of the entire universe in its completeness, grandeur and beauty. Here you have a picture of the entire universe—earth and sky, and the progress of man in the midst of them—set forth "not as the scribes, but as by one having authority." Listen to one who can read aright the poetry in nature in all its fullness and richness:

"Bless the Lord, O my soul. O Lord my God, thou art very great; thou art clothed with honor and majesty.

Who coverest thyself with light as with a garment; who stretchest out the heavens like a curtain;

Who layeth the beams of his chamber in the waters; who maketh the clouds his chariot; who walketh upon the wings of the world;

Who maketh his angels spirits; his ministers a flaming fire;

Who laid the foundations of the earth, that it should not be removed forever.

Thou coverest it with the deep as with a garment; the waters stood above the mountains.

At thy rebuke they fled; at the voice of thy thunder they hasted away.

They go up by the mountains; they go

down by the valleys unto the place which thou hast founded for them.

Thou hast set a bound that they may not pass over; that they turn not again to cover the earth.

He sendeth the springs into the valleys, which run among the hills.

They give drink to every beast of the field; the wild asses quench their thirst.

By them shall the fowls of the heaven have their habitation, which sing among the branches.

He watereth the hills from his chambers, the earth is satisfied with the fruit of thy works.

He causeth the grass to grow for the cattle, and herb for the service of men; that he may bring forth food out of the earth;

And wine that maketh glad the heart of man, and oil to make his face to shine, and bread which strengtheneth man's heart.

The trees of the Lord are full of sap; the cedars of Lebanon, which he hath planted;

Where the birds make their nests; as for the stork, the fir trees are her house.

The high hills are a refuge for the wild goats; and the rocks for the conies.

He appointed the moon for seasons; the sun knoweth his going down.

Thou makest darkness, and it is night; wherein all the beasts of the forest do creep forth.

The young lions roar after their prey, and seek their meat from God.

The sun ariseth, they gather themselves together, and lay them down in their dens.

Man goeth forth unto his work and to his labor until the evening.

O Lord, how manifold are thy works! in wisdom hast thou made them all; the earth is full of thy riches.

So is this great and wide sea, wherein are things creeping innumerable, both small and great beasts.

There go the ships; there is that leviathan, whom thou hast made to play therein.

These wait all upon thee; that thou mayest give them their meat in due season.

That thou givest them, they gather; thou openest thine hand, they are filled with good.

Thou hidest thy face, they are troubled; thou takest away their breath, they die and return to their dust.

Thou sendest forth thy spirit, they are created; and thou renewest the face of the earth.

The glory of the Lord shall endure forever; the Lord shall rejoice in his works.

He looketh on the earth and it trembleth; he toucheth the hills, and they smoke.

I will sing unto the Lord as long as I

live; I will sing praise to my God while I have my being.

My meditation of Him shall be sweet; I will be glad in the Lord!

Let the sinners be consumed out of the earth, and let the wicked be no more. Bless thou the Lord, O my soul, praise ye the Lord!

CHAPTER VII.

Prophecy of Nature.

It has often been said by those who regard nature as a system of mechanics that, if a man had a sufficient mathematical knowledge of the universe at a given period of time, he might predict its condition at any future age. From the knowledge of a limited arc, the whole curve of time might be described. What is lacking is an intelligence omniscient enough to make the calculation. The presumption is that the universe is as intelligible as an equation, but there is still lacking the master to work it out. We will not state the pros and cons of the argument, but let it remind us that the world is rationally made and hence admits of rational forecast to a remarkable degree. It reminds us that, inasmuch as the world is orderly and intelligible, the known parts and the observable tendencies of things may warrant many prophecies of future conditions and of future fulfillments.

It is not my purpose here to commit myself for or against the theory of evolution. It is not necessary that I should do so, but I do desire to say to those who accept it

that for them nature is a clear word of prophecy in her principles of completion. Imagine yourself as an observer in some earlier geological age and from that point endeavoring to predict the future of this earth. If you were a logician you might read forward with much prophetic assurance, facts which we now learn to read backward. The sure principle of natural prophecy is that nature will not stop nor tarry till all her decrees of perfection shall be completed. And on the last height of nature's ascent appears the unfinished life of man. What does this prophesy for us? It marks the culmination so far as has been revealed within the limits of visible nature. All lines in nature converge upon man, and thence nature's prophecies find in man their promised Messiah. This principle of perfection in nature is recognized. (Vide Nageli, the eminent botanist, in the introduction to his book in which he sums up his investigations of plant life, shows that, and it applies to our life, and prophesies that we also shall be made perfect.)

Then also eternal life involves in its scientific idea perfect environment. On the one side there must be a real spiritual freedom—that is, there must be a character made safe in its moral integrity—and on the other side there must likewise be an environment corresponding to its being, as the

light answers to the eve for its vision. This is the complete harmony of the spirit of man in the presence of God. Or, as Jesus said: "To know God is eternal life." But his present life, spiritual in character, is only nature's prophecy of its final consummation. This is but the embyro. The age of spirit—the golden age—is not yet here; it is only coming. Now man is only heir apparent and not yet king enthroned. But heir he is, for toward completion "the whole creation groaneth and travaileth," and surely tends. This is the positive momentum of the argument in nature for our immortality—and this is a welcome prophet.

Look at another clear word of prophecy: The last word of organic development is the individual. In any scientific conception, the idea of the perfection of the individual is involved. You cannot conceive of the fulfillment of life—a perfect life—apart from this. Low in the scale the individual was sacrificed for the benefit of the species. On the highest round the species exists also for the individual, and man, the individual, has acquired survival value. Personal immortality is henceforth nature's best, and nature's best is nature's sure prophecy of the coming life. In their hunger and thirst for life our own human hearts become their own true prophets; and our best life is our best interpreter. The history of life affirms that

the world's hunger is nature's true prophet, telling us that we shall be satisfied. And while hunger may seem cruel for the time being, at last it will be crowned with a beatitude: "Blessed are they that hunger and thirst after righteousness, for they shall be filled." Upon this highest mountain we behold our humanity transfigured and glorified in the Son of Man. In Him life and immortality were brought to light.

And yet, remember that the prophet must have insight before he can have foresight. In so far as the books are true to nature, we may rightly claim that history, geology, chemistry, biology, astronomy, as also natural history, physics and botany, are all among the prophets, some major and some minor. To say that history repeats itself is but another way of saying that it foretells. By a knowledge of the laws of meteorology we are enabled to predict the coming storm. The Revealed Word, long years ago set forth the fundamental principle of that pet science of today. "The wind goeth toward the south and turneth about unto the north —and the wind returneth again according to his circuits." Eccles. 1:6.

But especially astronomy—"the stars also"—shall be counted among the prophets. Some years ago Dr. Joseph Seiss published a remarkable book entitled "The Gospel in the Stars." He might have called

it, with equal truth, "Prophecy in the Stars;" for while this ancient teaching sets forth in picture form the cardinal points, enfolding the whole story of the fall and redemption, death and life eternal, and the ultimate triumph of God over Satan and evil, it does all this by way of prediction and hence it is prophetic.

The book attempts to interpret the signs of the Zodiac, a picture of the heavenly bodies, so ancient that many believe that it was handed down from antediluvian times; while some even date its origin back to the days of Seth or of Enoch, "who walked with God." Whence it came and what it all means, are the questions answered in the author's book. Dr. Seiss acknowledges the valuable aid of Frances Rolleston in her book entitled "The Mazzaroth; or, The Constellation." In Frances Rolleston's book, as regards the names of the constellations, she advances what I believe is the true theory: viz., that, as the Arabs and Greeks and others have carried over the traditions of the signs in broken and legendary form, so that they may all be traced to a common original, so have they carried over many of the names, not translating them, but retaining them without holding the original sense; and hence all that is necessary for the student is to refer these name forms to the

Hebrew roots, and he will thus obtain a consistent and rational confirmation of the wisdom of the method. It is my purpose in the briefest possible way to set forth the substance of the prophecies in the stars as seen in the signs of the Zodiac, and direct you to Dr. Bullinger, Miss Rolleston, and Dr. Seiss, for further investigation.

It seems to me that the fact is well established that, in the absence of a written revelation, the doctrine of redemption was inscribed upon the heavens for the antediluvians, and linked with the discoveries of astronomical science. A book entitled "Primeval Man Unveiled" advances this theory, and many portions of the Bible imply this. When you read Job 9:24 and 38 you feel as though that author knew all about the signs of the Zodiac and their attendant (decans). It is as reasonably certain as anything can well be that, with the stars that look down upon the earth night after night unchanged from age to age, there has been associated from the earliest ages the great purpose of redemption. When this fact, associating with it the marvelous interpretation of the signs of the Zodiac, is compared with the written Word, the wonderful likeness between them must compel the assent of the mind to the proposition that the signs and the written Word emanated from a common author.

As relates to those ancient people, we confess with the apostle that "the invisible things of Him from the creation of the world are clearly seen, being perceived by the things that are made, even His everlasting power and divinity." In the story of creation, when the "lights" were made, it was expressly said, "and let them be for signs and for seasons;" and, lest there should be a mistake as to what was included, it was said, "the stars also."

A sign is something arbitrarily selected to represent some other thing. The letters of the alphabet are signs—signs of sound and number. The notes on a clef of musical writing are signs—signs of the pitch and value of certain tones of voice or instrument. There is no relation whatever between these signs and the things they signify, except that men have agreed to employ them for that purpose; and so with an astrological sign. When God said, "Let them be for signs," He meant them to be used to signify something beyond, and additional to, what they express in their nature and natural offices. Nor can any sense be naturally deduced from the words, consistent with the dignity of the record, says Seiss, "without admitting that God intended from the beginning that these orbs of light should be made to bear, express, and convey some special teaching, different from

that which is naturally deducible from them." And as the Creator named and numbered the stars, "the heavens declare the glory of God."

Much emphasis in our day is laid on the principle of teaching by illustrations, by pictures, picture galleries, and moving pictures. We even teach the relative parts of a sentence by a picture—a diagram. I said, in our day we emphasize this method, but the truth is, that the farther back we go, the more this method was used; and the first kind of writing of which we have knowledge consisted nearly altogether of pictures. The Old Testament gives instances of Mnemonic devices whereby the children of Israel were kept in remembrance of the Divine promises and fulfillment.

When we study astronomy, we are first reminded that, from the very earliest days, the sky has been conceived of as being a vast picture-book containing strange figures. This picture-book is known as the Zodiac, and it has been handed down to us from the dimmest antiquity; or with but slight variation, as has already been stated, probably from the days of Seth or Enoch. "These signs were known in all ages and among all nations. Any zodiac plate gives a view of their forms and their respective positions, as assigned by the original designer.

What is the Zodiac and what does it mean? The word means a way. Along a path in the heavens, known to us as the ecliptic, the sun seems to make an annual revolution of the heavens. This path is a nature-indicated belt, about sixteen degrees wide, extending around the entire circuit of the heavens, half the year north and half the year south of the equator of the earth extended into the sky. It is divided into twelve seasons, through each of which the sun journeys in the course of a month, so that at the end of the twelfth month he appears to be about where he started at the beginning of the first month. Each of these sections contains a number of stars which make up a group or constellation, which has its own particular picture or "sign" to designate it and after which it is called. These are known to us in the memory verse:

"The ram, the bull, the heavenly twins,
And next the crab the lion shines,
The virgin and the scales;
The scorpion, arches and sea-goat,
The man that carries the water-pot,
And fish with glittering tail."

Three decans, indicated on the chart by connecting lines, belong to each main constellation (thirty-six in all). The interdependence of the designs show that they could not be accidental; and clearly the entire picture-book is a single concerted

work, intended to convey some instruction to men in a form easily remembered.

Here, then, we have before us the ancient picture-book. Let us read it and see how it confirms the statement that, ere the written revelation was given, God did not leave Himself without witness, and that in the sky "domed above us with its heavenly frescoes, painted by the thought of the Great Artist," the sons of men possessed in pictured outline the story of His great redemption.

Modern writings are divided into books, chapters and paragraphs. A careful study of any zodiac chart (you should follow the chart) shows an orderly arrangement, as it were, into books and chapters. The twelve signs of the Zodiac are divided into a trinity (three) of four signs each, and each trinity presents one main theme. Then each main theme is again divided and subdivided by its sign and decans.

It is generally agreed by students of this picture-book that the initiatory sign of the Zodiac is Virgo, and the internal evidence will satisfy you that here is the place to begin to read.

Trinity I.

A Redeemer Prophesied.

Sign I.

The Seed of the Woman.

Having determined the method and the starting point, we begin the reading. The first trinity contains the Virgin, the Scales, the Scorpion and the Archer. (Follow them on the chart.) They all tell a story which opens with the woman and her seed, and closes with the casting down of the Dragon. The attendant decans help to tell how the seed of the woman accomplished all this. The promise in the written work pointing to a Redeemer, is in Gen. 3:15 "It (her seed) shall bruise thy head and thou shalt bruise his heel." I need not tell the reader of the agreement of these two prophecies and their literal fulfillment.

Constellation I.—Coma.

The first attendant constellation or decan to Virgo is Coma. It is the name of the child in the Virgin's arms, and means desired or longed for. "The desire of all nations shall come." Haggai 2:7.

Constellation II.—Centaurus.

The second constellation is known as Centaur. It is below the Virgin and is represented as man and horse-man. The figure clearly represents two natures. The Hebrew name for this figure is Bezeh, which means the despised one.

Constellation III.—Bootes.

In this constellation we have the figure of a man walking rapidly, carrying a spear in his right hand and a sickle in his uplifted hand. This Greek name is most likely a remnant of the Hebrew root Bo, meaning the coming: 'He who cometh to judge the earth." "Thus these star pictures tell us (in this first chapter) that it would be as a child that the Promised Seed should come forth and grow and wax strong in spirit and be filled with wisdom; and that as a man having two natures He should suffer and die. Then the third and last section in this first sign of this first trinity goes on to tell of His second coming in glory." (Dr. Bullinger.)

Sign II.

The Work of the Redeemer Foretold.

The first sign sets forth the broad outline of the whole subject, and each succeeding sign supplies the details.

Following the Virgin in the pathway of the Zodiac is a pair of balances, Libra, with one scale higher than the other. The Hebrew name is Mozanaim, the scales. This suggests the helplessness of human effort. "By the deeds of the law shall no flesh be justified." The human race is weighed in

the balance and found wanting. In the southern scale the name of the star is Zuben al Genube, and means, the price deficient. (This is man's effort.) But, thanks be to God, the name in the scale which pulls down is Zuben al Akrabi, and it means "the price which covers."

Constellation I.—The Cross.

Remarkable indeed that at this point of considering the price, we should turn to the darkest of the heavens and there behold the cross. The Hebrew name for this constellation was Adom, and means cutting off, as in Daniel 9:29: "After three score and two weeks shall Messiah be cut off."

The picture of the Zodiac was constructed in northern latitudes, and on it the cross appeared very low down to the south. "The southern cross was just visible in the latitude of Jerusalem at the time of the coming of our Lord to die. Because of the recession of the Polar Star it gradually disappeared and became invisible at Jerusalem just when the real sacrifice was offered—the price paid."

Constellation II.—The Victim.

The second decan associated with Libra continues the thought suggested by the cross. Here is an animal falling on its

back, pierced and slain. The ancient Hebrew and Arabic names Aseda and Asedation mean to be slain. The New Testament reads: "By wicked hands crucified and slain." Yet it is nevertheless true that our Lord "laid down His life for the sheep."

Constellation III.—The Crown.

Whatever the theme of these stellar revelations, they always end with the great consummation. This constellation is a beautiful crescent of stars. The Hebrews called it Atarach, a kingly crown. If this heavenly picture-book illustrates the same story as the Bible, we should expect to find the humiliation and the exaltation set forth; and that is what occurs. For here we have the cross and the crown.

Sign III.

The Great Conflict Foretold.

All up and down the Old Testament we are reminded of a mighty conflict between the evil and the good. This prophetic picture is carried forward and is more clearly revealed—fulfilled I should say—in our Lord's temptation in the wilderness and in His conflict in the Garden of Gethsemane. Does this find a place in the heavenly picture-book? Rising just above the scales in the circles of the Zodiac is a group of stars known as the scorpion. "The scorpion,

as a living thing is a spider-like insect, formed something like a small lobster, with an extended chain-like tail, ending in a crooked horny sting loaded with irritant poison. To be struck by a scorpion is often fatal, though not necessarily so; but the pain from it is the intensest that can be inflicted on the human body." The figure and its attitude have a story to tell, and it is prophetic of the story in the written word. In the land where these figures originated, the scorpion surely was the symbol of darkness and danger, and of being in league with death. The fuller meaning also appears when we consider its decans.

Constellation I.—The Serpent.

As, in the first decan of Virgo, there is carried forward the idea of the Seed, found in the main sign, so in this decan there is carried forward in the serpent the idea of the scorpion power. So we may expect here, as we find it, the serpent struggling to reach the crown. The Hebrew name is Alyah, the accursed.

Constellation II.—Ophiuchus.

The name of this man, both in Hebrew and Arabic, is Afeichus; and it means the serpent held. The serpent, by subtlety, robbed the first man of the dominion held

out to him; but he has now to reckon with the second man, the Lord from heaven. In vain he tried temptation in the wilderness; in vain he tried persecution and the cross. But the picture is complete in what follows.

Constellation III.—Hercules.

This constellation is represented on the chart as a mighty man resting on one knee with heel uplifted, as if wounded. His left foot is set upon the head of the great Dragon which winds its scaly length about the ecliptic pole. He has a great club in one hand and in the other he holds a three-headed monster and a branch with fruit upon it. Surely this foretells of the Conqueror of the serpent, and the fruitful branch, the All-Powerful King. "God and truth and right must triumph in the end. The Ophiuchus who holds fast will not lose his crown. The scorpion may sting the heel, but the foot will crush its head. The faithful wielder of the club of righteousness may be brought to his knees (humiliation,) but he shall yet lift up the instrument of his power in glorious success, strangle Cerberus, and bear off in triumph the apples of gold, whilst the great dragon writhes through all his length with his head under the heel of the conqueror." (Dr. Seiss.) "He shall be King of Kings and Lord of Lords!"

Sign IV.

The Warrior and His Victory Foretold.

The story of the Bible is the story of the conflict between the powers of good and evil. The plan whereby victory shall be accomplished is told in history and in prophecy; and the more that plan is studied, the more it will be admired by the reader. Now see how all this is set forth by those early signs. Following the scorpion on the Ecliptic there is pictured a centaur carrying a bow, with an arrow fitted on the string and drawn to its head, ready to be discharged. This arrow is aimed directly at the head of the scorpion. Observe now that this is the second centaur and that it faces the first. Both carry weapons. That of Centaurus is aimed at the victim, but Sagittarius is about to find its way to the heart of the enemy. Before this "men began to call upon the name of the Lord." What can this mean if not Him of whom Enoch and other preachers spake? Here is the same divine being with the two natures as pictured in Centaurus. There He is the "despised and rejected," here He is going forth conquering and to conquer. There He is low down in the horizon with the outstretched serpent between Him and the patch of the sun; here He is high up with His head on the line of the ecliptic, no long-

er humiliated, but exalted, with a name that is above every name, "riding gloriously."

Saggitarious was called Kesith by the Hebrews, and meant the Archer. Cuneiform inscriptions designate Saggitarius as the strong one, the Giant King of War.

Constellation I.—Lyra.

The decans give additional information. Lyra is represented as a harp hung on an eagle's neck. The word means, He shall be exalted. In the Scriptures, praise is represented as following the victory of the King. "I will sing unto the Lord; for He hath triumphed gloriously." So here; and so, as on eagle's wings, shall praise ascend.

Constellation II.—Ara.

The Greeks used the word Ara, generally in the sense of crushing. And there is fire on this altar which is upside down. Is not this the symbol of judgment? "A fire goeth before Him and burneth up His enemies round about."—A fire awaiting the enemy, in perdition, when he shall be "cast down."

Constellation III.—Draco.

From the fires of the inferno, the eye sweeps the heavens toward the North Pole.

Here is a long and huge serpent, winding in folds about the Pole. In the Aramic it is still called Al Waid, *who is to be destroyed.* It is so placed that whatever its position, as it circles the pole, it is always falling. As seen on the chart, the foot of Hercules is planted over the head of the dragon, a prophecy of that which shall come to pass; viz., his destruction; but in this picture we see him falling towards the burning fire, "prepared for the devil and his angels."

This closes the first book. With one gigantic curve, the story sweeps from the fall to the great redemption. Marvelous indeed is the harmony of this picture with that of the written word. One cannot help but feel that, to the early men, this open book had a great religious significance and was intended to perpetuate truths originally given them by God himself.

Trinity II.

The Life-Giver Prophesied.

Sign I.

Death and New Life Foretold.

The first trinity has shown the work of the Redeemer in procuring blessing for the world by His death on the cross and by His victory over the Great Enemy. This trinity carries forward the story and shows the

blessings which come to those who will be redeemed. In this trinity, the Goat opens the sign and the ram closes it. The references in Scripture to these animals show them as sacrificial. The signs coming between these are connected with water and fishes.

The forms in this second trinity, not found elsewhere, are intended to teach a special lesson. Capricornus is pictured in the Zodiac as fallen, with his right leg bent under his body. He makes a futile attempt to rise. The Hebrew name is Gedi, the Goat; or, cut off. Especially, if one studies the name of the attendant stars, he has no difficulty in drawing the conclusion. Here are the symbols of sacrificial death. But of whom and for whom? The vigorous tail of the fish, which is in one body with the dying goat, forms a picture which has no parallel in nature; but it as a true counterpart in grace—life from the dead—the same person who dies and lives again. By means of sacrificial death, life was secured for the church—the sign of which was that of a fish.

Constellation I.—Sagitta.

Sagitta is an arrow shot from an invisible bow, and by an unseen archer. The arrow speeds its way to the heart of the Redeem-

er; and "We did esteem Him stricken, smitten of God and afflicted." Isa.

Constellation II.—Aquila.

Aquila is the second decan. It is the picture of an eagle, a royal bird, falling pierced and wounded. It is as the Lord saying, "Thine arrows stick fast in me." Ps. 38:2.

Constellation III.—Delphinus.

This is a figure full of life. The head of the wounded eagle was downward, that of the dolphin is towards the pole. The sacrificial animal, the arrow of death and the falling eagle, all tell the story of life given and taken. What can this last be but the divine completion to the story, the resurrection from the dead? The figure of the vigorous upspringing fish shows the transition to a new life—a life of another order.

Sign II.

The Water of Life.

"If any man thirst let him come unto me and live." John 7:37.

Look now at the main characteristic of this group opening with Aquarius. Vitality is in every line of this group. The preceding

group told of death in the Goat, the Arrow, and the Eagle. But from that death there came forth life, manifested in the vigorous tail of the fish and the living Delphin. But, in this group, that vitally is carried forward and appears in every constellation. Here is a man who appears to be in the act of running swiftly, his left hand uplifted. He holds on his right arm an urn from which flows, as from an inexhaustible reservoir, a stream which enlarges as it flows. Beneath his feet is a fish swimming forward to meet the stream. The fish drinks it all. Immediately above the water-bearer, is the forepart of a winged horse at full gallop. Higher still and midway to the pole is a swan, a bird of land and water, speeding its way in rapid flight through the heavens. Consider this picture in its parts. How significant Aquarius becomes to us as we listen to the conversation with the Samaritan woman! "If thou knewest the gift of God, and who it is that saith to thee, Give me to drink, thou wouldest have asked of Him, and He would have given thee living water." The written word shows that He has made the picture a glorious fact.

Constellation I.—Piscis Australis.

This is the fish low down on the chart that consumes all the water. The bright star in this group is called Fomalhant,

the mouth of the fish. If, in the main sign, we have the Giver and the gift, no less clearly are we shown in this sign the gift, the recipient, and the vigor it received.

Constellation II.—Pegasus.

The Greeks called this decan Pegasus, horse of the fountain. Pegasus carries with it the idea of returning swiftly, bringing joy. But observe this speedy advent in the last decan.

Constellation III.—Coyquus.

The chart gives it as the figure of a mighty bird, sweeping through mid heaven. In all modern languages, at least, it is represented as a swan; and, as that is a bird linked to air, earth, and water, it fittingly symbolizes the universality of the blessings to be brought. "Beautiful picture of most precious prophetic truth! A picture which I can interpret in no other way than as designed by men fully informed beforehand of these glorious facts! And if, perchance, these constellations were not meant in token, testimony, and prophecy of what is foreknown, believed, and expected by the primeval patriarchs who arranged them; the picture is still true to what has since come to pass, and which it is part of our holy religion to accept and rejoice in as the

great mercy of God to a fallen world." (Seiss.)

Sign III.

Life and Dominion.

On the Denderah Zodiac this sign is called Pisces Hori, the fishes of Him that cometh. Here are two fishes, vigorously swimming, one along the line of the ecliptic towards the water-pourer, and the other shooting upwards towards the pole. But, the picture being our guide, they are held in by the band of ribbon which, fastened to the tail of each, binds them to the sea monster. Carrying forward the idea of bondage here suggested, we next see a woman who is chained to the sky—fetters on her wrists and ankles, showing how complete appears to be her captivity. The last figure of the form is that of a man whose official position is clearly indicated by the crown he wears and by the sceptre he holds in his right hand. What do they mean? If, as already stated, the first chapter of this second book shows the gift of life to procure life, and the second shows the bestowment of that life—then, clearly, this chapter puts before us the life in vigorous manifestation. By the fall two things have been forfeited—life and dominion. The gospel prophecy dealt with these two items

and was designed to show how they should be regained. The fish in the other sign represented life. Two fishes represent life more abundantly—life and dominion. "I am come that they might have life, and that they might have it more abundantly." John 10:10.

Constellation I.—The Band.

"By this band these two fishes are inseparably tied together, so that the one cannot get on without the other." Its Arabic name is Al Risha, the band or bridle. The fishes speak of life. This band fastened to the sea monster suggests that, with all that life, still, so long as we are in this world we are subject to bondage.

Constellation II.—Andromeda.

The next picture is a peculiar one. It is that of a woman with fettered feet and arms, bound in helplessness to the sky. Andromeda is Greek, and means man-ruler. This carries forward the idea given in the band, and shows, in concrete form, the bondage from which deliverance is sought. "O wretched man that I am, who shall deliver me?" The next decan answers.

Constellation III.—Cepheus.

Cepheus is from a Hebrew root and means *branch*. Here is the figure of a king,

wearing a royal robe, having a crown on his head, and holding in his right hand the sceptre of dominion. Is not this the answer to the question, "Who shall deliver?" As we look now over the four signs, may we not say that the double truth is clearly suggested by the double sign? The one fish swims towards the water-pourer, as if for fresh draughts of life, and the other towards the pole, where sits in royal splendor the Deliverer—the King of Life and Dominion.

Sign IV.

The Ever-Living Conqueror.

This sign gives the triumphant deliverance from the power of the enemy. Glance at the figures of this sign and catch the idea of the matter and course of its teaching. Here we find, as the first picture, a Ram lying at rest on the ecliptic, over the head of the sea monster. It reminds us strongly of the Goat in the opening sign of this book. Both are animals of sacrifice, and both as such have the closest possible relation to the purpose and bestowment of life, in the scriptures. Their position—one at the beginning and the other at the end of the book, suggests that, in the order, the death of the sacrifice is followed by its triumphant possession of life in full vigor. Two thousand five hundred and forty years ago

the Ram opened the year. "The emblem and the names, existing before what they indicate took place, were prophetic, and are among the many proofs that God hath spoken. He commanded Moses so to fix the Passover, that, during the darkness of the crucifixion, the star so named should be close to the sun and the whole of the constellation Aries. He who cometh would appear around it. Man could not predict this coincidence, but God by Moses prefigured it. For 1500 years, the lamb was yearly slain when the sun was among these stars; but the Equinox had not receded thither. "Seasons, months, and years may vary, but the Solstice and the Equinox never." (Rolleston.) Some may say it was blind chance, but "it is easier to believe that it was design. It makes a smaller demand on faith." Surely it is "the Lamb that was slain," but now liveth.

Constellation I.—Cassiopeia.

Its Arabic name is El Seder, the freed. How striking the difference between this woman and that of the last chapter! Andromeda is seen bound helpless to the sky. This woman is free and is adorning herself for some festal occasion. Cossiopeia is the Church, the bride of the Lord placed near Cephus, the king, and is freed by Him.

Constellation II.—Cetus.

Heb. Mehumah Tehom (the chaos of the deep.) It represents primarily the state of chaos (Gen. 1:2.) Is not this great sea monster the great enemy of the Bible who is put before us as Leviathan? Isa. 27:1.

Constellation III.—Perseus.

Heb. Peretz, the Breaker. This is the word that is found in the prophecy of Micah, who tells of a time when the flock of God shall be gathered: "The Breaker is gone up before them—and the Lord at the head of them." Micah 2:13.

Trinity III.

The Great King Prophesied.

Sign I.

His Advent in Power.

As the first and second trinities, or books, of this heavenly library had each its specific theme to present, so also has this third book. No sooner do we open it and view its signs than we notice that the main idea presented, is that of the great King as regards His victory and triumph, associated with the idea of rest and safety. The trinity opens with the figure of an enraged bull,

"thrusting through" his enemies with his long sharp horns; and it closes with the lion aroused to wrath, and in the act of rending his enemy to pieces. Between these two powerful signs are signs suggestive of possession and safety. Here is wide diversity of representation, but a wonderful and helpful harmony.

Taurus or Heb. Shur, the bull coming, is represented on the Zodiac as if springing from the body of the ram; and thus the one person, in his two advents in redemption, is visibly set forth. In this constellation are two groups of stars, the Pleiades and the Hyades, that have always had a peculiar interest to men. What is intended, then, by these significant groups and star-names? We need not search far for an answer. Here is presented the Advent in Power. It is a picture of the resistless advent of the Judge, as He comes to destroy His legioned foes; but it is, at the same time, a picture which tells of the safety of them that are His.

Constellation I.—Orion.

The first of the group linked with Taurus is Orion. To the unaided eye, it presents a glorious assemblage of stars. Orion is figured on the map as a "giant hunter, with a mighty club in his right hand, in the act of striking; and in his left the skin of

a slain lion." The Scripture refers to this constellation by name. (Job. 9:9.) The ancient Accadian name was Ur-ana, the light of heaven. It is equivalent to the New Testament title, The Light of the World.

Constellation II.—Eridanus.

From the foot of Orion there flows a stream of stars, curving from side to side, and passing under the paws of the sea monster, flowing ever downward till it passes quite out of sight. Heb. Eridanus, the river of the Judge. This is "A fire that goeth before Him and burneth up His enemies, round about." Ps. 97:3.

Constellation III.—Auriga.

Here is perfect quietude, rest and safety. The figure is suggestive of the passage of Scripture which speaks of the Redeemer as the Shepherd—the Shepherd of Power. In the midst of the scenes of judgment and wrath, He shows mercy. Isa. 40: 10, 11.

Sign II.

Harmony in Rule and Redemption.
"So like they were, no mortal
Might one from the other know."

This second sign presents us with a picture of two human figures. Its decans, three

four-footed creatures—a hare and two dogs. As in the Word of God there are truths repeated in other aspects by other metaphors, so here also. The star names and the figures plainly remind us here again of the dual nature of Christ and His two-fold work as Redeemer and Conqueror.

Constellation I.—Lepus.

Rest and repose can come only as the enemy who hinders it is put out of the way. In Genesis is begun the history of the enemy, and the Revelation gives its close; but long ere John on the Island of Patmos saw this, the fathers of the race knew of the overthrow of the enemy.

Constellation II.—Canis Major.

As this star is the brightest in the heavens, so is He the brightest among the princes of the earth. The Wonderful Counselor, the Mighty God, the Everlasting Father, the Prince of Peace.

Constellation III.—Canis Minor.

Hebrew name, parag, redeemed. Thus He is the Redeemer or Deliverer. He is the prince in that representation of His work set forth in the second figure of the twins.

Sign III.

Gathering the Ransomed.

The aspect of the safety and shelter of the redeemed is here set forth in minute detail. In the last group were two dogs—a greater and lesser; and in this figure are two bears, a greater and a lesser. The main sign is cancer, a crab, and the last decan is Argo, the ship. The names indicate that the primitive idea to be conveyed was that of holdings, or binding together, and rest secured. "And He saw a resting place that it was good." Gen. 49:11.

Constellation I.—Ursa Minor.

This is the fact of two-tailed bears. From the name it seems evident that the meaning attached to the main sign belongs also to this. But let us look at the next.

Constellation II.—Ursa Major.

This is usually known as the great bear. In the Old Testament it is mentioned: "Which maketh the Bear, Orion, and the Pleiades, and the Chambers of the South." Job 9:9. As the names indicate, we are here shown the gathering and sheltering of the flocks before the storm of wrath bursts forth.

Constellation III.—Argo.

This is represented on the maps as a ship coming to rest, having reached port, its long voyage over. The names agree with this.

Sign IV.

The Overthrow of the Enemy Prophesied.

This group shows a lion roused to wrath; in the full vigor of his strength he is ready to rend his foe in pieces. Beneath him is the long, outstretched body of the serpent. Upon it is a cup, so closely united to it that the bottom of the cup is formed of stars which are in the body of Hydra; while a bird of prey, the raven, is engaged in feasting upon the still living body of the serpent. This is the group, and we venture the assertion that, apart from the story of redemption, it has no possible coherent explanation; but with that before us it becomes beautifully clear, and puts in picture form what the prophets of God have sketched in His word in clear language. The Book of Revelation shows the Lion (of the tribe of Judah) aroused in his majesty to action. There also is the "Old Serpent," and there, too, is the pouring forth of the cup of divine anger. And, lastly, there is the call to the "birds that fly in midheaven" to feast upon the enemies of the Lord. Is this merely coincidence? I

think not. And what do the decans say? They complete the story.

Constellation I.—Hydra.

This is the longest constellation in the sky. In this long, outstretched form of the swift or fleeing serpent (Job 26:13), are gathered all the ideas of the enemy which has been before us in these heavenly pictures; and, as the lion is shown as aroused to wrath, alert, and ready to spring, so the enemy is represented as fleeing from him. This is "leviathan the swift (gliding or fleeing) serpent, and leviathan the crooked serpent." Isa. 27:1.

Constellation II.—Crater.

In a word, this is the cup of wrath—"the cup of His anger."

Constellation III.—Corous.

"It is the sign of the absolute discomfiture and destruction of the serpent and his power; for when the birds once begin to tear and gorge the flesh of fallen foes, no further power to resist, harm, or annoy remains in them." Also shown in Rev. 19:17, 18, etc.

This brings us to the end of our story of the circle of the Zodiacal signs, with their decans.

Beginning with the sign of Virgo, the successive groups have presented a growing and consistent display of the prophecy, even to its final consummation of the Redeemer's triumph, in the enemy's final overthrow; and Revelation agrees with the picture to such a remarkable degree, that infidels have made the charge, at times, that the latter was taken from the former. Their charge, though absurd and unfounded and needing no reply, does remind us that this harmony must be accounted for. God did not leave His ancient people without witness. In some way he spake to them and set forth in picture form, so that to them literally the heavens declared the glory of God. And something after the fashion of the bow of promise to the post-diluvians, so to the antediluvians the stars of heaven prophesied of a calmer day and a kingdom wherein dwelleth righteousness.

CHAPTER VIII

Gospel In Nature.

Evidently it is the intent and purpose of the Gospel of Grace to lead the unwise, as well as the wise, to seek and to find Jesus. But the Wise Men saw a star in the East, and it almost served that same purpose. That Gospel in nature guided them to the very temple of God where they made further inquiry, and the prophet's word directed them to Bethlehem, where they found the Savior whom they worshipped, presenting unto Him gold and frankincense and myrrh.

Now astronomy is a science which has arisen from man's need of religion. Other sciences are often promoted by the utilitarian spirit. But in astronomy the first impulse came, not from the craving of the intellect, but from the wants of the soul. Astronomy was the relation of the world's youth. The Wise Men were led by a star to Christ. Their astronomy was the very pathway to the Saviour. Hence the folly of decrying human wisdom —science or philosophy. Of all vanities, the world over, the worst is the vanity of ignorance. It is a fact, as stated in a former chapter, that some Christian people depre-

ciate learning as though it were a disadvantage in religion. If the Christian who decries science, simply means thereby to affirm that science is not religion and that it does not necessarily make people religious, he is stating a truth; but if he means that such learning is a positive hindrance to religion then he is virtually saying that the Bible of Nature does not accord with the Bible of Grace—that the God of Nature is not the God of Grace—that the more you study the Creator's works, the farther you remove from Him. And, to be consistent and logical, we must press the matter to its inevitable conclusion and hold, as most uncultured and barbarous nations do; viz; That the state of idiocy brings us nearest to God. This is the logic of Buddhism, losing self in Nirvana; and its twin sister, Christian Science, of our day.

Some of St. Paul's expressions are quoted by some as sanctioning this idea. He tells his converts to beware "lest any man spoil you through philosophy." Whereupon they take for granted that modern philosophy is the enemy of Christianity. This is one instance of many of the ways in which an ambiguous word misunderstood becomes the source of great error. And this error has crept into that otherwise most excellent series of pamphlets under the title "The Fundamentals" in an article, "Modern Phil-

osophy," by Philip Mauro, Counsellor-at Law, New York City. Listen to St. Paul. He tells Timothy to "Beware of Profane and old wives' fables." He speaks of "endless genealogies"—"worship of angels"—"intruding into those things which men have not seen." This was the philosophy of those days—a system of wild fancies spun out of the brain—something that has kinship to fortune-telling, spiritualism, demonolatry; but as different from philosophy as we know it in our day as any two things can be. This the author of "Modern Philosophy" does not seem to realize. We should also know that philosophy has become Christian, and that science has knelt to lay down its offerings at the altar of Jesus. There is a deep significance in that search, homage, and worship of the wise men. For it is a specimen of what science has often done.

In a former chapter attention was called to the fact that the Greeks, guided by Nature's Book, came to the very gate of the kingdom. The truly wise men of every age and every clime seek, and by a little help from the prophets, find Jesus. All the universe tells of Christ. The stars even now preach the mind of Christ. Not as of old when mysteriously a star guided their feet to Bethlehem, but to the mind of the astronomer they now tell of eternal order and harmony and changeless law. You may cal-

culate to the day and hour and minute the star's return. Here is the gospel of God's fidelity. These mute masses obey the law impressed upon them by their Creator's hand, and that law is the law of their own nature. Kepler said "O God, we think thy thoughts after Thee! To understand the laws of our nature, and consciously and reverently to obey them,—that is the mind of Christ and the sublimest spirit of the Gospel. But, with all that, it was only a star when compared with the great luminary. Stars may lead willing hearts to the neighborhood of Christ and salvation, but the words of God's chosen prophets must be consulted to discover its exact locality, and to disclose all its fulness. "All pure arts and useful knowledge" lead Christward. Nature's book on so many pages tells of that which is heavenly and divine; and needs but a translator to open its hidden treasure of law and harmony and love. But all this world's light is mere starlight, till the records of Revelation pour forth their day-beams and give us certainties. The truly wise men are never so wise but that they can learn more of Christ in a few lines from the prophet Micah than from all material sources.

And now that we have the great luminary why shall we go star-gazing at noon-day? It would be folly unbounded to make this

cold, dark earth the center of the universe, with all the evidence that we now have that the sun holds that unique place in the system of the worlds. And, living in the noon-day of grace, when the Sun of Righteousness has reached its zenith of glory and splendor, it would be greater folly still to seek religion on the outer rim of the circle; that is, in the evidence manifest in the stars, the strata of rock, and in the fauna and flora of our day, instead of going direct to the central Son from which radiates all true light—"The Light of the World."

Many young men suddenly thrust into the critical atmosphere of the natural sciences, become dazed for a time; and, not assisted in the readjustment of methods, they imagine that they have lost faith. They have not lost faith. Their only trouble is that they have not learned that the method of faith is the method of all other knowledge.

The end of all true philosophy is to learn that we must believe; and science confirms this. Some years ago, Prof. Marsh, President of the American Association for the Advancement of Science, in an able address before that body, made an appeal for faith, stating that thus the mystery of life might eventually be solved. And here we should realize that all progress is by this method of faith; whether it pertains to things political, social, religous, or scientific. The man

of science begins with what he believes to be a verity—an idea—an hypothesis. He verifies it according to its domain—in astronomy by mathematics—in chemistry by retort and blowpipe.

Astronomy, previous to this inductive method in its application to what are known now as Kepler's laws and the Newtonion hypothesis of gravitation, was in a state of chaos, and its votaries were hopelessly divided by conflicting theories. This is equally true when applied to chemistry and all the other branches of learning. But the advent of the inductive method, beginning with an idea, an hypothesis, has ushered in every golden age of achievement—it has given the human race astronomy for astrology; chemistry for alchemy; freedom for serfdom; commerce for piracy; missions for monasticism; medicine for magic; and religion for superstition.

This inductive or faith method has given us the modern view of physics which destroys the old naturalism, for it shows that the atom has structure and that its component parts are probably electrical in character. Of electricity itself the physicist has no knowledge other than what electricity will do, and, inasmuch as electricity can not be directly perceived by our senses, all this information has come to him through the agency of matter. Electricity is truly

invisible. The everyday laboratory faith of the physicist is now not in visible material as formerly understood, but in the invisible thing we call "electricity." He has repudiated the atom as a unit, observing in it a wonderful and complex system of unending interest and great experimental possibilities, and has accepted the atom of electricity as the basis for his scientific belief. This new conception of science should remove from the minds of the people that depressing influence upon religious thought which has accompanied the extension of the known domain of physical law. For now we see more clearly that the explanation of the material world about us can be written only in the terms of the invisible. The reality of matter, as formerly conceived, is now abandoned, and the invisible becomes the everyday reality of the scientific laboratory. This does not lead to the formation of a new religious faith, but the exclusion of the hindering influence of the old naturalism. The new naturalism cannot exclude God, for there is as much opportunity for him in the complex system called the atom as there used to seem to be in the solar system. Indeed, the atom of electricity, which is but a minute portion of the atom, must be itself divisible. One familiar with physics thinks at once of the possibility of the electron being merely a manifestation of that mys-

terious hypothetical medium termed "the ether." At the present time the problems of the ether are the most perplexing and fundamental, undoubtedly perplexing because fundamental. The only cognizance we have of the ether is due to the action of electricity. It would therefore seem reasonable for us to consider the atom of electricity to be produced by the ether, and if this be accepted, the description of the whole realm of matter in terms of the medium, the ether, becomes possible. The tenableness of this attitude on the part of the physicist strengthens the tendency to interpret all in terms of the unseen, the immanent mind, God. Indeed, the modern conception of the immanence of God finds splendid reenforcement in the view of modern physics.

The shifting of the scientific faith of the physicist from the atom to the electron gives us a clearer view of the unending search for the ultimate unit. The wonder and complexity of the atom gives us a greater confidence in the immanence of God and builds for us a vision which makes clearer than ever the Gospel in Nature so aptly expressed by Lodge:

"We are deaf and blind, therefor, to the immanent grandeur around us, unless we have insight enough to appreciate the whole, and to recognize in the woven fabric of existence, flowing steadily from the loom in

an infinite progress toward perfection, the ever growing garment of a transcendent God."

The fact that the literal correctness of a given hypothesis is not demonstrable, except by results, in no wise militates against its value in the domain to which it belongs. In fact, it would cease to be an hypothesis the moment it were demonstrated. Gravitation is undemonstrable except from results. Kepler's Principia is undemonstrable except from results. You cannot prove that they are correct, only as you put them to the test. And yet no one would hesitate to depend on them in the most important concerns of life —nay, to stake his very existence upon conclusions based upon such well-tried theories—in other words, upon the conclusions of faith. I say faith, for the reason that all science is built on the hidden and the unseen, just as truly as is religion. In ascertaining the essential reality of all that is perceived by the senses, science goes behind all that which men commonly have in mind when they think of the material, to the reality which cannot be perceived by the senses; or, as Kant called it, "the thing in itself." In so doing they find the essential, but hidden reality. As the essential reality of material they find atoms; of sound, undulations of air; of heat; light and electricity, vibrations of an all-pervading ether. But

who ever saw an atom? Who ever saw, heard, touched, or tasted that mysterious something we call ether, "a medium which fills the universe and penetrates all bodies?" Who, I ask, with micrscope, or telescope, or spectroscope, has ever seen the links of the mighty chains of gravitation stretching across the desert space and binding together suns and stars and systems? So, then, the essential realty of the tangible is the intangible; of the audible is the inaudible; of the visible is the invisible; of the perceptible is the imperceptible. Thus science puts itself on record as saying: "Back of all these visible and tangible and audible things is to be found the thing in itself, which no human eye shall ever see;" and this is scientific confirmation of that other Book, which says: "We look not at the things which are seen, but at the realities which are unseen; but the realities unseen are eternal."

So, then, the method of the man of science is by faith. It sounds verily like the faith chapter in Hebrews, when the scientist testifies. It was by faith that Dalton proposed the atomic theory and thus explained the laws of definite and multiple proportions. By faith LaPlace proposed the Nebular Hypothesis to account for the earth and the worlds as they now are. By faith Newton discovered the law of gravitation,

which has been the stepping-stone to such marvelous discoveries in the solar system and has been the key to unlock so many hidden things in nature. By faith Lavoisier has been enabled to tell us of the conservation of matter and energy, and that light, heat and electricity are but modes of motion, which cannot be destroyed, but may be transformed. It was faith that enabled Morse and Edison to make us live in a new world by transforming energy and harnessing it to the mill-wheel and the factory band. Back of all that is visible and tangible, we believe there is the atom, ether, and gravitation, though we have never heard, seen, tasted, or touched them. The chapter in Hebrews is in entire accord with the methods of science when it says: "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do not appear."

We must approach the Gospel of Grace by the same method. Here is a life to account for—the life of Jesus so marvelous, so unique. The outward facts differentiate this from all other human lives—born of a virgin, a sinless life, "love so amazing, so divine." (By the way, Dr. James Orr has written a wonderful book on "The Virgin Birth," to which I beg to call the attention of my readers.)

Another unique and solitary fact in human history is this absolutely sinless man. In his birth immaculate; in His childhood, youth, and manhood; in public and private, in death and in life, He was faultless. Listen to the witnesses. His enemies testify. The Pharisees watched Him. I quote again: "There were the Pharisees, mighty in every crowd, hiding behind every tree. They examined His disciples, they cross-examined all around Him. They looked into His ministerial life; into His domestic privacy, and His hours of retirement. They came forward with the sole accusation they could muster—that he had shown disrespect unto Ceasar. The Roman judge, who ought to know, pronounced it void."

There was another spy, Judas. Had there been one failure in the Redeemer's career, in his awful agony, Judas would have remembered it for his comfort; but the bitterness of his despair, that which made his life intolerable, was, "I have betrayed the innocent blood." He challenged His bitterest enemies to convict Him of sin. The prayer of the forgiveness of trespasses which He teaches and urges upon others, He needs not for Himself.

The testimony of His friends I need not recite. His life was like a ray of light, which, parting from the fountain of light, can pass through the foulest medium and

still be unstained and untouched? Do you want an illustration of true devotion. Behold Him whole nights in prayer! Do you want an illustration of suffering? See His path across Palestine tracked in blood! Do you want an example of patience? See Him abused and maltreated and never offering one sharp retort! Do you want an example of industry? See Him without one idle moment! Do you want a specimen of sacrifice? Look at His life of suffering, His ignominy and death, His sepulchre of humiliation! What an example! His feet wounded, yet He submitted to the journey! His back lacerated, yet He carried the cross! With wounds in His hands and wounds in His feet and wounds in His side and wounds on His brow, He cried out "Father, forgive them, for they know not what they do." This is "love so amazing, so divine."

All honest men must account for these facts; and, by the same method of induction as that used by the man of science, we arrive at the deeper hidden idea, the Logos. Truly this was a righteous man—the Messiah that should come into the world. And the more you observe the facts, the more you are assured of this verity.

Still another word regarding method as it applies to the individual life of the Christian. It is no discredit to a child to believe in the things of life and religion, what his

parents and teachers tell him, but it is to his discredit as a man to continue to believe these things purely on the ground of priestly or parental testimony. "When I became a man I put away childish things." Forbid that I should say anything against the creeds of the church—those grand and glorious testimonies that have come down to us from our fathers. Creeds are testimonies witnessing for Christ. If the testimony of one is good, the testimony of many is better. But, for all that, we dare not mistake the creed for the life of God in the soul. When we become men, we must put our religion to the test—practice it, test it, reaching up to a general truth through the study and testing of a large body of particulars—the inductive method—the laboratory method with retort and blowpipe. You may call that pragmatism. I will call it practical religion. The method was recommended by our Lord when he said: "If any man will do His will he shall know of the doctrine, whether it be of God."

There is a significant illustration of this very fact in the person of the brilliant English scientist, George John Romanes. And there are many who, to return to the kingdom, like him, must live life over again. He had been reared under strict religious influences. His religion was largely of the inherited kind—parental authority kind;

and, until he found himself inside the university, he had never questioned the validity of his beliefs. But he became interested in the then new doctrine of evolution. Not able to reconcile the scientific method with his inherited religion, he forsook his faith with bitterness and tears; and, as did Voltaire, he wrote a book which was intended to shatter the foundations of religion. Some years passed by and by chance there fell into his hands a little volume of science describing the researches of a foreign missionary to China by the name of Gulick. This little book reveals an intimate knowledge of nature. Romanes was greatly surprised at its contents, and wrote to the missionary, asking him how a Christian who believed in the supernatural could make so valuable a contribution in the field of pure science. Gulick replied to the sceptic that, in the domain of faith, he applied the same method as in the field of science,—the inductive method both in religion and science. This was a new thought to Romanes. He began to realize that he had started at the wrong end. He determined to seek God. He began by looking at that unique will and life of Jesus. He began the slow, patient effort of living that life; and, from the darkness and the damps of the valley of unbelief, he rose to the uplands of clear sunlight and living faith in a personal Redeemer. His

salvation was one of method—it was the gospel of Nature—and may it not be the means of helping many others?

Look at the miraculous in nature! And now a word concerning the miraculous in the Book of Grace. When the Lord gave sight and speech and hearing to one possessed with a devil, the sceptics, unable to deny or discredit the fact, immediately attempted to explain it in such a way as to obviate the conclusion that "no man can do such things except he be from God." And so they attributed the miracle to the prince of devils.

How very different their method of treating this subject of miracles from that adopted by unbelievers in our day. Modern sceptics assert that there were no miracles. However, they are unanimous in this; that, if Christ did work the miracles, the inevitable conclusion would be that He was from God. The great masters of infidel logic cannot tell how to get away from the divinity of the Gospel, if they admit the reality of miracles. In this they agree with the Christian. And so, to avoid the conclusion, they must deny the premise.

But beyond a doubt, the ancient infidels were the better judges of that which occurred before their very eyes. The testimony of the eye-witnesses should surely be worth more than any modern specula-

tions on the subject. And, if there had been the shadow of an opportunity for them to discredit the facts, surely they would have done that rather than seek refuge in such an absurd theory. His enemies understood Jesus to affirm His divinity when he said, "Before Abraham was, I am." Taking the eye-witnesses as the most competent judges of the facts, and our modern infidels as the best judges of the logic of the case, between the two (from the most bitter enemies of Christianity,) we have everything we need to settle unmistakably the Messiahship of Jesus and the divinity of His religion.

But it is to the first miracle that I wish especially to direct you. Christ's glory did not begin with the miracle; the miracle only manifested it. During all the years while He lived on earth, the same glory was in Him. It was no more divine now than at any other time—no more divine at any time than it was when in obedience to His mother and in love to his brethren. It was just as divine in those simple, daily acts of life, as when it showed itself in a way startling and wonderful. It was just as much the life of God on earth when He did an act of ordinary human love or human duty, as when He did that which was extraordinary, such as turning water into wine.

God was just truly in the daily life and love of Christ as He was in His miracles.

The miracles only made that hidden glory visible. The extraordinary only proved that the ordinary was divine. That was the very object of the miracle; viz; to manifest His glory. And if, instead of quickening men to see the real glory ever present in Him, the miracle only fastened men's attention on itself, then the whole intention of the miracle was lost.

The gospel of nature will illustrate this. If you have ever thought on this matter, you are aware that the lightning only manifests the electric force which is everywhere, and but for a moment has become visible. As often as we see it, it reminds us that the lightning slumbers invisibly in the dewdrop, the cloud, and the mist, and binds together every atom of water that we use in daily life. But to the unthinking worldling, lightning is something unique and does not exist unless it appears. To him there is wonderful glory in the lightning's flash, because he sees it; but none in the dewdrop, simply because he does not see it. And so, to the half-believer, a miracle is the only evidence of God. But to a believer, a miracle only manifests the love and power which are silently working everywhere—shown just as truly in the slow work of the Epileptic Home and the cure for the insane, as in the sudden giving of speech and hearing to the one possessed with a devil—as

truly divine in the gift of daily bread, as in the miraculous increase of the loaves and fishes. God's power is at work not only in the growth of the vine and the ripening of the grapes, but just as truly in the fermentation of the grape-juice as it passes into wine. It is not more glory, but glory more manifest when water is commanded to pass immediately into wine.

And so even what we consider oft-times the ills of life, have their mission for good if only we could read aright. Concerning the man born blind, Jesus was asked, "Who sinned, this man or his parents?" Jesus answered, "Neither this man nor his parents, *but that the works of God might be made manifest.*" If we study aright the Gospel of Nature, then every tree and shrub will become to us a burning bush from which we may hear the voice of God lovingly speak to us.

"Flower in the crannied wall,
I pluck you out of the crannies:—
Hold you here, root and all, in my hand,
Little flower—but if I could understand
and know
What you are, root and all, and all in all
I should know what God and man is."

And be sure of this one thing, that if you do not recognize God's presence in the

annual miracle of harvest, and God's presence in the vintage of every year, then you will not be convinced by the miraculous. "If you hear not Moses and the prophets neither will you be persuaded though one rose from the dead." Miracles have only done their work when they teach us the glory and the wonders that surround our common life—when they teach us to read the gospel in nature, and when they teach us the many lessons we may learn from nature's pages if only we can read aright.

In a little booklet entitled, "A Scientific Confession of Faith," Emily Lovira Gregory, Ph. D; the author, says of her German materialistic professor at Zurich, that in speaking of the mystery that inheres in the simple drop of protoplasm, which is the germ from which the plant springs, he was accustomed, in his dignified way, often to say: "Ich biege mich vor dem Geheimniss," "I bow myself before the mystery"—before the mystery, that is, enshrined in the tiny drop, of protoplasm. Though the savant cannot explain the mystery, he admits the fact.

So also there are mysterious facts in the life of Jesus which we designate as miracles. No one pretends to understand and explain them. They are mysterious facts. Concerning the conception, the nativity, and the incarnation; the changing of water into

wine, the feeding of the five thousand, and the calling of Lazarus from the dead. I will say as the German Savant says with reference to the mysterious fact of ordered potentiality resident in the simple drop of protoplasm; "I bow myself before the mystery." Here again there is kinship in the Book of Nature and the Book of Grace.

But from this mystery there goes forth from both books the glad message in the phenomena so eagerly read by the men of science and by the followers of Christ. With this knowledge as a starting point, how easily all other questions are met and answered! Then all will blossom as the rose.

Why not look upon a miracle as that which it professes to be, and apart from which it would be no miracle—as something happening outside the laws of nature so far as we know them, whether it be an occurrence in obedience to higher laws or whether it be an arbitrary and supernatural intervention of God. From this simple position with regard to a miracle, and this definition which is contained in the word of God itself, two things follow: First, the absurdity of denying it. For, to maintain that no miracle has ever taken place, that such a thing is impossible, is to maintain that we know all the forces and laws and possibilities in the universe! We see what a foolish proposition that is. "It is the presumption of human

ignorance to hold that a thing is impossible, simply because it seems to us incomprehensible." (Mandsley.) Science never has been, and never will be, in a position to decide infallibly what can and what cannot be. Therefore, the possibility of a miracle, as something apparently incomprehensible, is not to be denied. The old discussion as to whether it resulted from a direct dispensation of God or from the operation of unknown laws, is for us idle and unprofitable. What we, for the sake of brevity and convenience, call natural forces, are in reality a continual exercise of the power of God, as in Revelations IV:11, the heavenly choir sang, "Thou hast created all things, and for thy pleasure they are, and were created."

The second result that follows from the above definition of a miracle is the impossibility of scientifically disputing it; for a miracle is entirely outside the domain of scientific criticism. This was acknowledged by Tyndall (so much revered by scientists,) who was by no means a believer in the Bible, yet admitted that if there is a God He is Almighty, and therefore can work miracles; and that miracles have nothing to do with science, but lie outside her province. We would recommend this utterance of a man of rank to those of no rank, but who delight in confronting miracle with science—a process much like shooting at the sun with a

revolver, and thinking if only the weapon were more powerful we should hit it. The very essence of a miracle is its intangibility by proofs and reasoning, its incomprehensibility, and its incapability of being proved. He who tries to explain it shows that he does not know what a miracle is, and in his attempt only succeeds in making a fool of himself, both from the scientific and the Christian point of view. He who allows his belief in miracles to be reasoned away, or even shaken by professedly scientific arguments, is, to say the least, sadly lacking in perspicuity, and would do well to test His conception of an Almighty God and find out what he really does believe. He who does not believe in miracles, does not believe in God, even though he believes that he believes in Him; that is to say, he is mentally too weak to grasp both. In all times, small natures have been inclined to ridicule the idea of a miracle, just because it goes beyond their horizon, while in all ages and nations there have been great, deep-thinking, and clear-sighted men who have believed it.

The Book of Nature, as well as the Book of Grace, teaches us to believe in the supernatural. The child and the sage alike live in a world largely made up of the supernatural element, and the latter sees even more wonderful things than the former. It

is, however, easier to believe in the supernatural in general than in the miracles of the Bible, for between the two lies the great difference between theory and practice. This accounts for the fact that many people who have no difficulty in believing that long ages ago God created the world, would think it very strange if they were told that God has this morning created a grain of sand. And others who grant the existence of a Supreme Being somewhere far off, would smile if I told them that this morning He had answered my prayer. They can put up with the supernatural; that belongs to philosophy, almost to science. But to believe in miracles! Think of all it means! Think of all it leads to!

Men cannot get away from miracles; even the materialists believe in them. Not in those, it is true, which happened nearly nineteen hundred years ago, and to which many trustworthy men are witness; but in such as happened millions of years ago, which were observed by none who could testify to their genuineness. That he may not be obliged to believe in the miracle of creation he believes in an improved spontaneous generation or imports at great expense life-germs from other worlds. That Christ raised the dead, made an organism which had lived, live again, he does not believe; but he does believe that organisms

were generated by dead matter. That God for a special purpose endowed an ass with speech, that it spoke certain words, is too absurd to believe; but that an ape, without knowing why, gradually began to talk, and that all the asses in the world will one day speak, is, or ought to be, seriously believed by those who hold the doctrine of evolution. That God, the creator of fire and of men, should have made three men fireproof for a few minutes, seems to them a ridiculous legend; but they believe that organized germs existed for millions of years in the glowing cosmic gas and in molten granites. Even Tyndall believes that all life-germs, the inventive faculty, reason, and the will, in all their manifestations were once "latent in a fiery cloud!" If that is not a miracle, what is it? Truth is a mighty weapon, whether you find it in the Book of Nature or in the Book of Grace. It drives men to believe in the miraculous even though the facts are accounted for by such an absurd statement as that a God cast out devils through the prince of devils. When you accept miracles as truth, there is harmony. When you deny them, you are caught on the horns of a dilemna.

The Bible of Grace is full of nature—the New Testament as well as the Old. Paul is preaching the gospel from the Book of Nature when he declares, "to all that be in

Rome," beloved of God, that "that which may be known of God is manifest in them; for God hath shown it unto them; for the invisible things of Him from the creation of the world are clearly seen, being understood by the things that are made." Rom. 1:19, 20. To the pagan Athenians he said that "in God we live and move and have our being," and gave their own poets credit for having read this gospel from the Book of Nature. It seems to me unnecessary to dwell on this, beyond that of pointing out the mere fact that it was our Lord's method invariably to teach by parables, which is only another way of saying that He pointed them to the great Book of Nature, which was constantly before their eyes and making things of the kingdom otherwise hid from them would be manifest.

The kingdom of heaven is like unto a net that is cast into the sea; like unto a householder; like a treasure hid in a field; like a grain of mustard seed; like a merchant seeking goodly pearls.

When we learn a science, such as geometry, algebra, astronomy or botany, our intelligence does nothing but recognize and contemplate the presented truths. These truths existed just as truly before we recognized them; but they were not truths for us until we personally became sensible of them. When the laws governing the

heavenly bodies became sensible to Kepler, then in ecstasy he cried out, "O God, we read Thy thoughts after Thee!" And almost as soon as we recognize the fact that they are thoughts for us at this end, we also recognize that they must have been thoughts at the other end. Thus, if order, harmony, beauty and intelligence are recognized in nature—come out of nature—they must somehow have been potentially in it. And if there is logos at the end, we may be sure that there was also logos at the beginning.

When the five or six-year-old child of the Scottish philosopher, Beattie, was beginning to read—a child to whom the father had not as yet sought opportunity to talk of God—an opportunity to find entrance into his mind for this great idea in a manner suitable to his age, the father thought of the following expedient. In a corner of a little garden, without telling anyone of it, he drew with his finger on the earth the three initial letters of his child's name; and sowing garden cresses in the furrows, covered the seeds and smoothed the earth. He tells us: "Ten days after, the child came running to me, all amazed, and told me that his name had grown in the garden. I smiled at these words, and appeared not to attach much importance to what he had said. But he insisted on taking me to see what had hap-

pened. "Yes," said I, on coming to the place, "I see well enough that it is so; but there is nothing wonderful in this—it is a mere accident," and I went away. But he followed me; and, walking beside me, he said very seriously: "That cannot be an accident. Some one must have placed the seeds to produce this result." "You think, then," said I to him, "that what here appears as regular as the letters of your name, cannot be produced by chance?" "Yes," said he firmly, "I think so." "Well, then, look at yourself, consider your hands and fingers, your legs and feet, and all your members, and do they not seem to you regular in their appearance and useful in their service? Doubtless they do. Can they then be the result of chance?" "No," replied he, "that cannot be; someone must have made them for me." "And who is the someone?" I asked him. He replied that he did not know. I then made known to him the name of the great Being who made all the world; and regarding his name, I gave him all the instruction that could be adapted to his age. The lesson struck him profoundly, and he has never forgotten it or the circumstances that was the occasion of it!"

And so it is true in all the universe that, wherever there is thought, beauty and order at the end, we know that it was at the beginning. When we know what is at the

end, we know what was at the beginning. If we see the marks of a loving father's hand at the end, we know that a loving father's hand was at the beginning. It is nature revealing itself

Though a subject so commonplace, it seems to me that this chapter would be incomplete without a reference to the fact that springtime and flowers mean resurrection. Some branches of learning you may study at your option. But the Lord commands you to "consider the lilies of the field, how they grow."

During the long winter months, down in the dark, damp grave, the lily bulb, the crocus, the tulip, the hyacinth, and the daffy-down dilly were sleeping, as it were, "the sleep of the just." Apparently the floral world was dead—had disappeared from off the face of the nether-world. If we had never seen a springtime, with its resurrection of glory, then the resurrection day itself would not fill us with greater wonder and admiration than the first days of spring, when "the winter is past, the rain is over and gone, the flowers appear on the earth, the time of the singing of birds is come, and the voice of the turtle-dove is heard in our land;" "when the fig tree putteth forth her green figs, and the vines with the tender grape gives a good smell." "How are the dead raised up? and with what body do they

come?" some ask. What a foolish question! Says Paul: 'That which thou sowest is not quickened except it die; and that which thou sowest, thou sowest not that body that shall be, but bare grain, it may chance of wheat or some other grain; but God giveth it a body as it hath pleased Him, and to every seed his own body." Paul means to say that the book of nature tells the story—the life-history of the individual. If we accept the one revelation, we are morally bound to accept the other. It is scientific confirmation of the Gospel of Grace. A shrivelled grain of wheat is buried in the ground. There it dies, and the farinaceous part of it decays and forms a peculiarly fine soil, into which the life-germ strikes itself, and upon which the life-germ feeds. The seed itself dies with the exception of a particle too small to be seen with the naked eye. Soon we see a green blade springing up. That swells, grows and increases until it comes to be the full corn in the ear. No one has any suspicion but that the same wheat arises from the soil into which it was cast. Put into the earth, we believe that it springs up, and we are accustomed to talk of it in our ordinary language as being the very seed that was sown, although the difference is striking and marvelous. Now you have a plant about three feet high, bearing many grains of wheat, which the other day

was an insignificant shrivelled grain; yet no one doubts that the two are the same.

So shall it be in the resurrection of the dead. The body is here like a shrivelled grain—there is no beauty in it that we should admire it. It is put into the grave, like wheat that is sown in the earth; there it decays; ("earth to earth, ashes to ashes, dust to dust,") but God preserves within it mysteriously a sort of life-germ which is immortal, and when the trumpet of the archangel shall shake the heavens and the earth, it shall expand to the full flower of manhood—far more glorious—a glorified body.

"Wouldst learn to know one little flower,
Its perfume, perfect form and hue?
Yes, wouldst thou have one perfect hour
Of all the years that come to you?
Then grow as God hath planted, grow
A lordly oak or daisy low,
As He hath set His garden; be
Just what thou art, or grass or tree;
Thy treasures up in heaven laid
Await thee sure, ascending soul,
Life after life—be not afraid."

Joaquin Miller.

CHAPTER IX.

Conclusion.

(a.) The Alleged Controversy Between Science and Religion.

The alleged Antagonism of Theology to the Progress of Science is, we believe, very much exaggerated. The great majority of the men whose names are memorable in the history of science and who have contributed most to its advancement were men of faith —monotheists—men who devoutly and reverently believed in the God of the Christian's Bible and not in the gods of the heathen. Even the Greek philosophers, Plato and Aristotle, were not materialists, but metaphysicians; they believed in religion and attained more clearly to monotheism than to polytheism. When we think of the scientific achievements of the Arabs in the Middle Ages, let us remember that they believed in one God. And when we think of the Renaissance of the Revival of Learning, let us not forget that it was developed by Christian civilization, while the partial civilization, of Mahomet declined and fell.

As regards the charge of Dr. Draper in his "Conflict between Religion and Science," that the Catholic church is responsible for the condition of Europe from the fourth to the sixteenth century, Dr. Samuel Harris correctly says: "Certainly an author is destitute of the historical spirit and utterly incompetent to write history, who can make so amazng a generalization and account for the course of events during all those centuries by a single cause." It is like saying that intemperance is the only sin in the world.

It is true that Roman Catholicism, with Christianity left out, does hold principles incompatible with freedom of thought. This the Encyclical of Pope Pius IX. indicates clearly. But the institution of Roman Catholicism is so far away from the spirit, doctrine, and life of Jesus and the primitive church, that it seems to me far from fair to lay its faults at the door of the Christian church. The Protestant Reformation was the true development of Christianity, reasserting its primitive and essential spirit and truth, and re-establishing freedom of thought and speech, by which very freedom Rome itself has been benefited. Dr. Draper seems entirely unconscious of the fact that he, a Unitarian, furnishes a striking example of extremes meeting, when he cites Romanism as his conception of the

church as an outward visible institution, and thus confounds the errors thereof with Christianity. As a matter of fact that institution which Dr. Draper calls the church and stigmatizes as the one cause of the evil conditions of the Middle Ages, did often stand in the way of science and progress. And yet in so far as it did so it is void of the pure teaching of God's word and the right administration of the sacraments, and in so far as its life is not in accord with the life of Christ and with a true and living faith in Him, it is not the church at all; it is a monster, anti-Christian and contrary to the church which lived invisible during those dark days. This true church all honest men must admit was the very means most effective in resisting the man-made institution of Romanism (so powerful in its worldliness) and in bringing out of it at last the Revival of learning and the Reformation of religion.

When Lord Lindsay was in Egypt, wandering amid the pyramids, and seeking out the mysteries of the tombs, he discovered a mummy, afterwards ascertained to be two thousand years old. Unwrapping it, he found in its closed hand a bulbous root, which he carried home and planted where it might have the warm sunshine and the rain. To his surprise and astonishment it sprouted and budded and blossomed into a

beautiful flower. Let this be a parable of what I mean by the church invisible, retaining still its hidden potencies.

It would be well for those who stigmatize the Christian religion as being opposed to progress and invention, to remember that Wiclif, the morning star of the Reformation, had arisen; that Huss had aroused his countrymen to intense activity of thought and to religious reform, before printing was invented; that Luther had nailed his ninety-five theses to the castle church door in Wittenberg before there was a telescope or a microscope. Before there was a post office system in England or a carriage on springs in Paris; before James Watt and Arkwright were born, these great religious awakenings had taken place in Europe. Here, as always, spiritual truth has gone in advance of science in its work of rousing the mind to action.

It is also in keeping with fairness and truth if I say that during the nineteenth century very many of the scientists of the first rank in all departments of the natural sciences were at the same time devout Roman Catholics. Direct antagonisms on the part of the clergy against scientific discovery are comparatively few, notwithstanding the insinuation by some, tending to convey the impression that discovery in science has usually in all ages been opposed

by the clergy. There is no foundation for this; or at most, it is a gross exaggeration. The one illustration which we have heard since we sat on the rude bench in the little red school house at the cross-roads, is Galileo and his doctrine of the antipodes. Dr. Draper, in the "Conflict Between Religion and Science," does not seem to realize that there has always been a greater conflict; viz., that between Scientist and Scientist. For it is a fact very evident to those who know history, that scientific discoveries have met with more opposition from the students of natural science themselves than from all the theologians the world over.

Copernicus, in the dedication to Pope Paul III., of his work, "Concerning the Revolution of the Heavenly Orbs," says, that he had kept his book four times the nine years required by Horace because he knew how absurd his doctrine would appear; and Whewell adds: "It will be observed that he speaks of the opposition of the established school of astronomers, not of divines." The theory did encounter great opposition from astronomers, as Copernicus had anticipated. Scientific men were slow to accept it. Lord Bacon rejected it to the end of his life. And mark this, if you please! Whewell adds: "Perhaps the works of the celebrated Bishop Wilkins—a clergyman,

you will observe—tended more than any other to the diffusion of the Copernican system in England." And Wilkins' book was published in 1638 and 1640, nearly a hundred years after Copernicus had published his system.

Huygens, Bernouilli, Cassini, Leibnitz, and others, the most distinguished physicists and philosophers of the close of the seventeenth and the beginning of the eighteenth centuries, opposed Sir Isaac Newton's system of gravitation. Dr. Jenner's discovery of vaccination was opposed and denounced by physicians. The antiphlogistic controversy against those who recognized the discovery of oxygen was long and bitter.

A century after the discovery of microbes had been made by Swammerdam and Leewenhoeck, the Academy of Paris (scientific) attempted to overthrow it with a sneer! "One can generally see," said they, "with the microscope whatever one imagines." Aubry says of Harvey's discovery of the circulation of the blood: "After Harvey's book, 'Of the Circulation of the Blood,' came out, he fell mightily in his practice, and it was believed by the vulgar that he was crack-brained. And after his discovery was accepted in England, it was still opposed abroad."

As regards Geology, H. S. Williams, in

his story of Nineteenth-Century Science, says, that a great controversy was waged between the two schools (of scientists assuredly) known as Neptunists and Plutonists, headed by Werner and Hutton respectively. Williams says: "The history of geology during our first quarter-century is mainly a recital of the intemperate controversy between these opposing schools."

The same author says concerning Chemistry: "Of all the contests that were waged in the various fields of science in this iconoclastic epoch, perhaps the fiercest and most turbulent was that which fell within the field of chemistry. Indeed, this was one of the most memorable warfares in the history of the polemics." The main point at issue was the old doctrine of phlogiston and the antiphlogistic movement championed by Lavoisier with the help of Priestley's discovery of oxgyen. Williams says: Lavoisier "fell by the guillotine, a victim not only of the 'Reign of Terror,' but likewise a victim of national frenzy." At Berlin the scientists began by burning the French reform leader in effigy, but soon ended by accepting the new theories. In England the fight was more stubborn. This conflict, you will note, was between scientist and scientist.

The real point of interest in this contest, however, for those who think that the

clergy has stood in the way of progress in science, is, of course, the fact that Dr. Joseph Priestley, an ordained minister, was the discoverer of oxygen, and thus made possble for Lavosier the new chemistry. Furthermore, a generation later, Davy said of this preacher that "no other person ever discovered so many new and curious substances as he."

Yes, the conflicts above alluded to, and many, many others, were conflicts between scientist and scientist. And this is the rule which obtains where there has been opposition to the advancement of science; viz., that the conflict has been between opposing schools of science, so that clergymen may well say, as Aesop's wolf did when he saw the shepherds eating a lamb, "If I had done this what an outcry would have been heard!"

(b) The Greatest Scientists Were Religious Men.

In modern times the greatest scientists were, without doubt, devout men. Hear them speak, and then answer the question. Were they opposed to religion? Hear Carl Von Linne, the father of Botany and the son of a Lutheran Vicar—listen to his voice raised amid his researches among the Flora: "God, the eternal, omniscient, I have seen from behind the flora as He passed by —and I stood in awe."

Sir Isaac Newton records his testimony at the close of the Principia: "This beautiful system of sun, planets and comets could have its origin in no other way than as the purpose and at the command of an intelligent and powerful Being. He governs all things, not as the soul of the world, but as the Lord of the universe. He is not only God, but Lord or Governor. We know Him only by His property and attributes, by the wise and admirable structure of things around us, and by their final causes; we admire Him on account of His perfections, we venerate and worship Him on account of His goodness."

Sir Humphrey Davy (scientist) said: "I envy no quality of mind or intellect in others, be it genius, power, wit, or fancy; but if I could choose what would be most delightful, and I believe most useful to me, I should prefer a firm religious belief to every blessing; for it makes life a discipline in goodness, creates new hopes when all earthly hopes vanish, throws over the decay and the destruction of existence, the most gorgeous of all light, awakens life in death, and from corruption and decay calls up beauty and divinity."

Listen again to the rapt devotion of Kepler, with which he closes The Harmonies of the Universe: "Thou who by the light of nature hast kindled in us the long-

ing after the light of Thy grace, in order to raise us to the light of Thy glory, I give thanks to Thee, Creator and Lord, that thou hast given me delight in thy creation, and that I have exulted in the works of Thy hands. I have completed the work which I proposed, with such force of intellect as Thou hast given me. I have manifested the glory of Thy works to the men who will read these demonstrations, so far as my limited mind can comprehend Thine infinitude. If I, a worm and a sinner, have set forth anything unworthy of Thy counsels, inspire me to correct it and to set forth what Thou wouldst have me know. If by the admirable beauty of Thy works, I have been hurried into any rashness, if I have sought mine own glory among men while prosecuting a work intended for Thy glory, wilt Thou, gentle and compassionate one, forgive. And deign propitiously to cause that these demonstrations may promote Thy glory and the welfare of men. Praise ye the Lord, ye heavenly harmonies; and ye that understand the new harmonies, praise ye the Lord. Praise God, O my soul, as long as I live. From Him, through Him, and in Him is all the material, as well as the spiritual; all that we know, and all that we do not know as yet, for there is much to do that is yet undone."

Hear also Lord Bacon in this choir of

kingly worshipers: "Thou, therefore, Father, who gavest the visible light as the first fruits of the creation, and at the completion of Thy works didst inspire the countenance of man with intellectual light, guard and direct this work, which proceeding from Thy bounty seeks in return Thy glory. If we labor in Thy works. Thou wilt make us partakers of Thy vision and Thy Sabbath. We pray that this mind may abide in us; and that by our hands and the hands of others to whom Thou shalt impart the same mind, Thou wilt be pleased to endow with new gifts the family of man."

Perhaps it will interest us more to know the attitude to the Scriptures and the Christianity of the leading Scientists of the nineteenth century. You may want the facts up to date, and so I will call the roll of honor and let them speak.

The first general statement of the law of the Conservation of Energy we owe to the German scientist, Robert Mayer, a Protestant. In 1891 Tyndall wrote: "No greater genius than Mayer has appeared in our country." This same great scientist (when on a voyage) wrote to his parents, "I will offer up under all skies incessant prayers to the Almighty that He may keep my beloved parents safe and well." At the end of the voyage: "I waved on high my Bible and my hymn-book, for which, before all

other books, I had longed." "My early feeling (said he at another time) that scientific truths are to the Christian religion much what brooks and rivers are to the ocean, has become my most vital conviction." At another time he quotes Matt. 10:32 in defense of his religious testimonies. "Whosoever therefore shall confess me before men, him will I confess also before my Father which is in heaven."

William Thompson, (Lord Kelvin) a Protestant, was, says Von Helmholtz, "at the age of thirty-one, one of the first mathematical physicists in Europe." He is the author of more than three hundred important works, and the father of the theory of vortex rings. Having in mind the lesser lights who advocated materialistic evolution, this great luminary said: "Science positively affirms creative power. Science makes everyone feel a miracle in himself." (London Times, May, 1903.) And again: "If you think strongly enough, you will be forced by science to believe in God, which is the foundation of all religion. You will find science not antagonistic, but helpful to religion." ("Nineteenth Century" for June, 1903.)

Allow me to call attention briefly to the mathematicians. I should at least mention the name and one fact of Euler (Protestant,) though he belongs to the eighteenth

century. He wrote a book entitled "Defense of Revelation against the Objections of the Freethinkers."

Karl Frederick Gauss (Protestant) was one of the foremost mathematicians of all time. Of him, his biographer says: "The indestructible idea of personal survival after death, the steadfast belief which he had in a Supreme Ruler, a just, eternal, omniscient, omnipotent God, formed the foundation of his religious life, and in unison with his matchless scientific achievements formed a perfect harmony."

Cauchy (Catholic), the greatest mathematician of his day in France, made this confession: "I am a Christian; that is to say, I believe in the Divinty of Jesus as did Tycho-Brahe, Copernicus, Newton, Leibnitz, Euler—as did all the great astronomers, physicists and geometricians of past ages."

Of Victor Puiseaux (Catholic,) the successor to Cauchy, Gilbert testifies that he was a man of profound religious convictions. Reiman (Protestant,) regarded daily self-examination in the presence of God as one of the elements of religion. Herman Grassmann (Protestant), described by Cantor and Leskien as "one of the most remarkable mathematicians of our time," was a loyal Christian; was much interested in Foreign Missions, and left behind

him a work which bears the title "On the Decay of Belief."

Concerning LaPlace it is well to mention that there is an anecdote which relates that when he presented one of his works to Napoleon, the latter said: "Newton in his work speaks of God. In yours I find no mention of God." To which LaPlace is said to have replied: "I find no need for that hypothesis." Now let us, for a moment, suppose that LaPlace did use such words (though I doubt it), it does not follow that he was an atheist." It would simply mean that he contrasted his theory with that of Newton; in this view of the case, it is necessary only to bear in mind the points on which he was at variance with the great Englishman in order to grasp the sense of the epigram. At the sight of so many planets and worlds, Newton had given way to the fear that these countless, intricate movements of orbs must result at last in confusion, and that the intervention of God from time to time was necessary to obviate this confusion. But one of the greatest achievements of LaPlace was precisely his proof that such intervention is unnecessary. He showed by mathematical calculation that such confusion can never occur. If LaPlace did reply in the words contained in the anecdotes, he by no means necessarily intended to deny the existence

of God, but probably only meant to assert that the intervention of God was not necessary to prevent the collision of worlds. It is true that LaPlace cannot be held up as a model in religion. It is worthy of note, however, that he was never in his own estimate a materialist. J. B. Dumas says that the great mathematician commissioned Arago to see to it that his biography should not represent him as an atheist, but as a believer, and adds that when he came to die, he sent for a priest and devoted himself to settling his accounts with heaven.

Let me now cite a few examples from among the chemists. Klaproth, the chemist (Protestant), was a "profoundly religious man." Chevreul, the chemist, said: "Those who know me, know that, born a Catholic and of Christian parents, I live and wish to die a Catholic." Schoenbein (Protestant) said: "Yes! everything in nature reveals a God whose wisdom and power humble our pride; for in His works we have learned to know and to worship Him." Berzelius, Dumas, Leibeg, Chevreul, one and all, opposed materialism. Wurtz, Friedel, Dalton and Henry, were all Protestant Christians.

Dumas, for thirty years the leading French chemist, was a devout Catholic, and Lavoisier (Catholic) "died in the Christian faith." Karl Fresenius, a Protestant, whose

hand-book of quantitive analysis ran to sixteen editions in German and was translated not only into every European language, but even into Chinese, was as enthusiastic in religion as in science. Henri Devill "remained faithful all his life to the religion of his boyhood and died in its bosom."

Karl Ritter who made geography a science, was a Protestant Christian. F. M. Maury, master of Physical Geography, was a Protestant Christian. D'Abbadie was a zealous Catholic. Hausmann was a Protestant Christian. Buckland and Conybeare were ministers of the Anglican Church. G. Von Roth and H. Von Dechen were Protestant Christians.

Among the men who in the nineteenth century did great things in Physiology, Zoology, Embryology, and Botany, we name the following who were Protestant Christians: Cuvier, Wagner, Volkmann, Spiess, Ruete, Flourens, Bell, Simpson, Dana, Braun, Von Martins; while Laennec, Carnoy, Pasteur, Bernard and J. Mueller (the Cuvier of Germany) were Roman Catholic Christians.

Among all the scientists of the nineteenth century Pasteur ranks supreme as a benefactor to mankind. It is far under the truth to say that he has saved more lives than Napoleon destroyed. Pasteur's faith was

as genuine as his science. He wrote at one time: "Happy the man who bears within him a divinity, an ideal of beauty and obeys it; an ideal of art, an ideal of science, an ideal of country, an ideal of the virtues of the gospel." (The Catholic Encyclopaedia.)

Christian G. Ehrenberg (Protestant) won his reputation in the sphere of the infinitely small. Kings and princes summoned him and his microscope. He conceived nature as ordered by the reasonable, purposive laws of the conscious Creator. (Teleological Interpretation.)

Louis Agassiz (Protestant) wrote: "The animal kingdom is the visible manifestation of the thought of God. Since man has been created in the image of God, he can lift himself up to the conception of the Divine plan in creation." Referring to God, he called Him "the same Being that prophesied that the Son of the Virgin should crush the head of the serpent."

Alfred Russell Wallace says: "We thus find that the Darwinian theory, even when carried out to its extreme logical conclusions, not only does not oppose, but lends a decided support to, a belief in the spiritual nature of man. It shows us how man's body may have been developed from that of a lower animal form under the law of natural selection; but it also teaches us that we possess intellectual and

moral faculties which could not have been so developed, but must have had another origin; and for this origin we can only find an adequate cause in the unseen universe of Spirit."

At one of the morning prayer services at Northfield Lady Hope, a consecrated English woman, told the remarkable story printed here. Later Lady Hope wrote the story out for the "Watchman-Examiner." It will give to the world a new view of Charles Darwin. "It was one of those glorious autumn afternoons, that we sometimes enjoy in England, when I was asked to go in and sit with the well-known professor, Charles Darwin. He was almost bed-ridden for some months before he died. I used to feel when I saw him that his fine presence would make a grand picture for our royal academy; but never did I think so more strongly than on this particular occasion.

He was sitting up in bed wearing a soft embroidered dressing gown, of rather a rich purple shade. Propped up by pillows, he was gazing out on a far-stretching scene of woods and cornfields, which glowed in the light of one of those marvelous sunsets which are the beauty of Kent and Surrey. His noble forehead and fine features seemed to be lit up with pleasure as I entered the room. He waved his hand toward the window as he pointed out the

scene beyond, while in the other hand he held an open Bible, which he was always studying.

"What are you reading now?" I asked as I seated myself by his bedside.

"Hebrews!" he answered—still Hebrews. 'The Royal Book,' I call it. Isn't it grand?"

Then placing his finger on certain passages, he commented on them.

I made some allusion to the strong opinions expressed by many persons on the history of the Creation, its grandeur, and then their treatment of the earlier chapters of the book of Genesis.

He seemed greatly distressed, his fingers twitched nervously, and a look of agony came over his face as he said: "I was a young man with unformed ideas. I threw out queries, suggestions, wondering all the time over everything, and to my astonishment the ideas took like wildfire. People made religion of them.

Then he paused, and after a few more sentences on "the holiness of God" and "the grandeur of this book," looking at the Bible which he was holding tenderly all the time, he suddenly said:

"I have a summer house in the garden, which holds about thirty people. It is over there," pointing through the open window. "I want you very much to speak there. I know you read the Bible in the villages.

Tomorrow afternoon I should like the servants on the place, some tenants and a few of the neighbors to gather there. Will you speak to them?"

"What shall I speak about?" I asked. "Christ Jesus!" he replied in a clear, emphatic voice, adding in a lower tone, "and his salvation. Is not that the best theme? And then I want you to sing some hymns with them. You lead on your small instrument, do you not?"

The wonderful look of brightness and animation on his face as he said this I shall never forget, for he added: "If you take the meeting at three o'clock, this window will be open and you will know that I am joining in with the singing."

J. Hanstein (Protestant), a Botanist of Bonn, said that organic life becomes intelligible only when interpreted teleologically. J. W. A. Wiegand (Protestant), the great Botanist, was also a fervent Christian. F. Von Fueller (Protestant), a Botanist, made it a practice to enrich his works with carefully chosen Latin mottoes, commonly drawn from the Bible, declaring the glory of the Almighty as manifested in creation. Max Westermaier (Protestant), says in 1903: "The reward set on a true knowledge of the physical universe is no other and no less than a true knowledge of God. This path to God is open to all men, even to those

who have never heard of Christ or Christianity, and all reasonable men must perceive and pursue it."

I need not tell you what Volta, Ampere, Ohm, and Galvani did in the domain of electricity. They were all devout Christians! Faraday, "the greatest experimental philosopher the world has ever seen," was one of the most pious Protestant Christians. Stokes, Maxwell, and Lord Kelvin won for the Cambridge School of Physics the reputation which it still enjoys. The Encyclopedia Britannica (1902) ranks them as the three greatest physicists of the day. They were all devout Protestant Christians.

Sir William Crooks, one of the world's greatest chemists of the day, writes: "I cannot imagine the possibility of anyone with ordinary intelligence entertaining the least doubt as to the existence of a God—a Law-Giver and a Life-Giver."

Sir Oliver Lodge, perhaps the greatest living physicist and certainly an earnest believer, writes: "The tendency of science, whatever it is, is certainly not in an irreligious direction at the present time."

Sir George Stokes, the great physicist, (died 1903) affirmed his belief that disbelievers among men of science form a very small minority; and Sir James Geikie, dean of the faculty of science at Edinburgh University, impatiently writes: "It is simply an

impertinence to say that the leading scientists are irreligious or anti-Christians. Such a statement could only be made by some scatter-brained chatter-box or zealous fanatic."

In their zeal for their specialized work religion is often simply crowded out of their lives.

Guglio Marconi, whom every boy knows as an inventor of wireless telegraphy, is a loyal member of the Waldensian (Protestant) Church. The two Herschels, the greatest astronomers of all time, were very consistent Protestant Christians. Leverrier (a Protestant) said that the study of the heavens had only deepened his living faith in Christianity. Harve Fae writes much to show the agreement of science and the Old Testament Cosmogony. He says that the study of Astronomy leads to a recognition of God. Many Catholics rendered great service in this branch of science during the nineteenth, as in former centuries.

As concerns the attitude of Geologists toward the subject of religion, I will say that the great mass of those of the first rank in the last century were not at variance with it, but on the contrary found it their chief joy to point out the harmony that existed between the Bible of Nature and the Bible of Grace. Hundreds have referred to this fact and many have written entire volumes

on this subject. For example, De Luc (1817), George Cuvier (1813), MacCulloch (1835), Von Fuchs (1856), Buckland (1856), Hugh Miller (1856), De Serres (1862), Hitchcock (1864), Pfoff (1886), Dana (1895), Dawson (1899), Waagen (1900), Kinns (1881), Rentsch 1910, Wright (1907), etc., etc.

To save space and yet to accumulate facts bearing on this point, I will add also, that at the time of the meeting of the British Association for the Advancement of Science, in 1865, a manifesto was drawn up and signed by six hundred and seventeen scientific men, (many of whom were of the highest eminence) in which they declare their belief not only in the truth and authority of the Bible of Grace, but also in its harmony with the Bible of Nature. This manifesto was printed with the signatures attached, and the original document deposited in the Bodleian Library at Oxford. It is as follows: "We, the undersigned, students of the Natural Sciences, desire to express our sincere regret that researches into scientific truth are perverted by some in our own times into occasions for casting doubt upon the truth and authenticity of the Holy Scriptures. We conceive that it is impossible for the Word of God as written in the Book of Nature, and God's Word written in Holy Scripture, to contradict

each other, however much they may appear to differ." Among the list of signers of the above manifesto, I find such names as Sir David Brewster, in the case of whom no less than eleven lines of the volume are required to enumerate his literary and scientific titles. Here we have the united testimony of more than six hundred men, skilled in science, telling us of the harmony of Revelation as it is written in the Bible of Nature and in the Bible of Grace.

Must, then, the science of the nineteenth century and of the centuries preceding, be regarded, as a whole, as hostile to, and in conflict with, the Christian religion? Has there been such great hostility, as is often portrayed in anti-Christian journals, between Christianity and men of science? Why, I ask, should there be need of it when great men of science such as we have named have themselves been on the side of the Revealed Word, and who with the Bible of Nature at their command have ever wielded that mighty weapon in its defence?

It is perfectly true that in many of the universities at home and abroad professors can be found who are materialists, and not Christians. It is true that men like Virschow, Tyndal, and DuBoise Reymond can be found upon the side of unbelief, but that does not disannul what I have desired to show. When a disciple of the school of

Elea had proven conclusively to another Greek philosopher that the idea of motion is self-contradictory, and that, consequently, motion is impossible, his hearer replied, not by argument, but by simply walking up and down. We have tried to use the same method by quoting the confessions of many great scientists to show that science and religion are not at variance—that there is no need of conflict as alleged.

We are not forgetful that physical science is not complete, but is only in condition of progress, and that at present our finite reason enables us to see only as through a glass darkly; but we confidently believe that a time will come when the two records will be seen to agree in every particular, and we cannot but deplore that natural science should be looked upon with suspicion by many who do not make a study of it, merely on account of the unadvised manner in which some are placing it in opposition to Holy writ. We believe that it is the duty of every scientific student to investigate nature simply for the purpose of elucidating truth, and if he finds that some of his results appear to be in contradiction to the written word, or rather to his own interpretation of it, which may be erroneous, he should not presumptuously affirm that his own conclusion must be right and the statements of Scripture wrong. Rather let

the two stand side by side until it shall please God to allow us to see the manner in which they may be reconciled; and instead of insisting upon the seeming differences between science and the scriptures, it would be as well to rest in faith upon the points in which they agree.

There is a difference, of course, between men of notoriety and men of great scientific attainment. Just as falsehood always travels at a much greater speed than truth, so also the scientific apostles of unbelief possess, in a much fuller measure than their Christian colleagues, the faculty of getting themselves talked about. The former constitute the whirlwind and the storm; the latter, the still, small voice. Everybody in Germany knows the names of Haeckel and Karl Voght, and everybody in England knows the names of Tyndal and Huxley, and everybody in America knows the names of Ingersoll and Paine. These are men of notoriety—because they were storm-centers of controversy between scientist and scientist. Many who far excelled them as scientists are not known, and in the accounts of their lives in encyclopaedias and elsewhere, we seek in vain for the slightest references to their attitude to religion. Although we are certain that by far the greater number of the really great scientists of the centuries were men whose

convictions were in accord with the principles of Christianity, it has not been our aim to be concerned about numbers. We were concerned, however, to inquire whether the great masters found anything in their science to turn them from the Christian religion, and we were likewise rejoiced to learn that where infidelity did exist, it existed from other causes than that of real facts attained by empirical methods.

What a contrast between the depth and height of the religious sentiments of these mighty men of science and philosophy, and the flippancy and superficiality of some of the would-be scientists of our day! When in the history of the natural sciences we observe that the greatest minds incorporate such sentiments into their scientific treatise, as we have quoted above, we have good reasons to know that there is no conflict between true science and the knowledge and worship of God.

The End.